

FIG. 1A

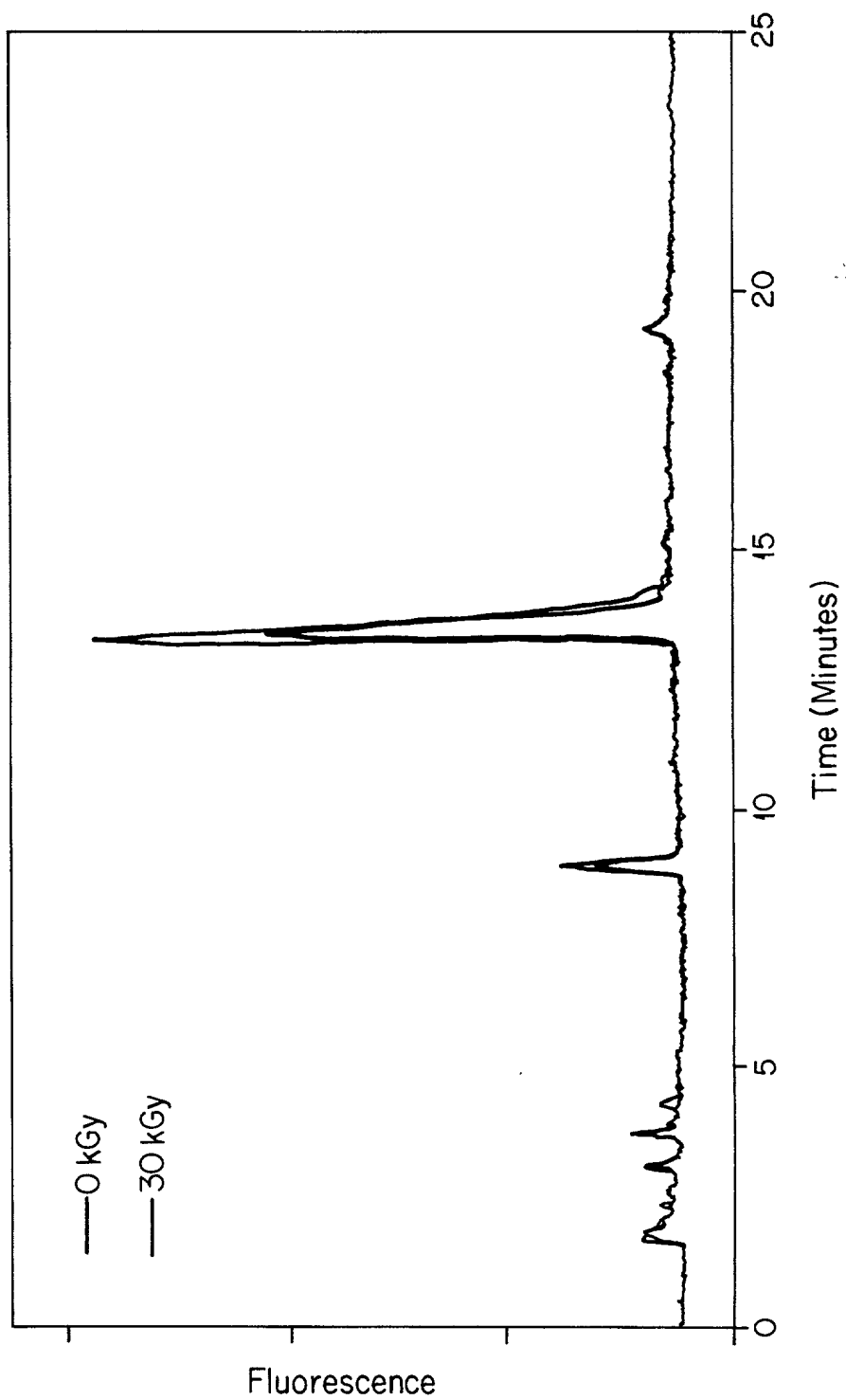


FIG. 1B

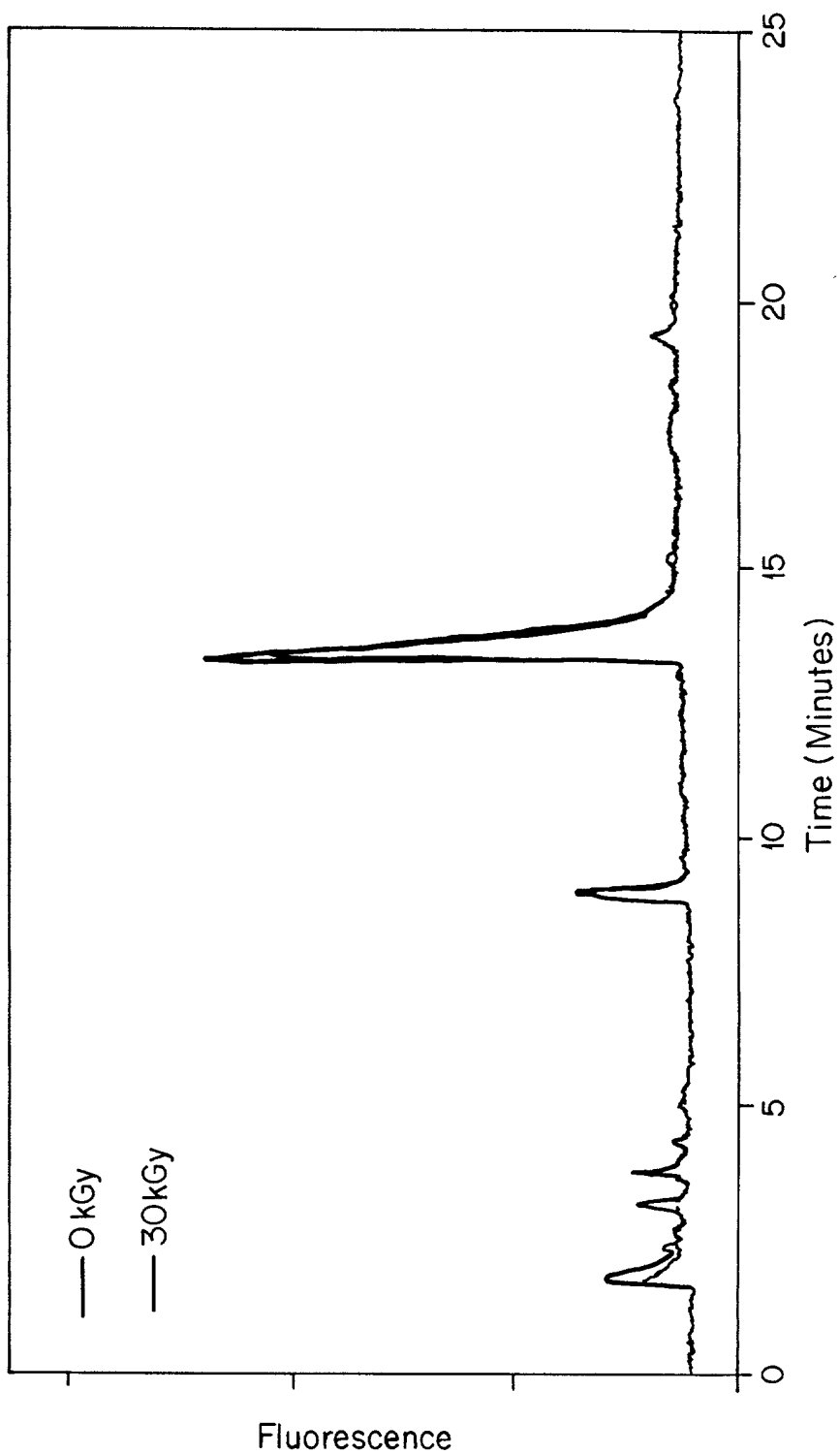


FIG. 1C

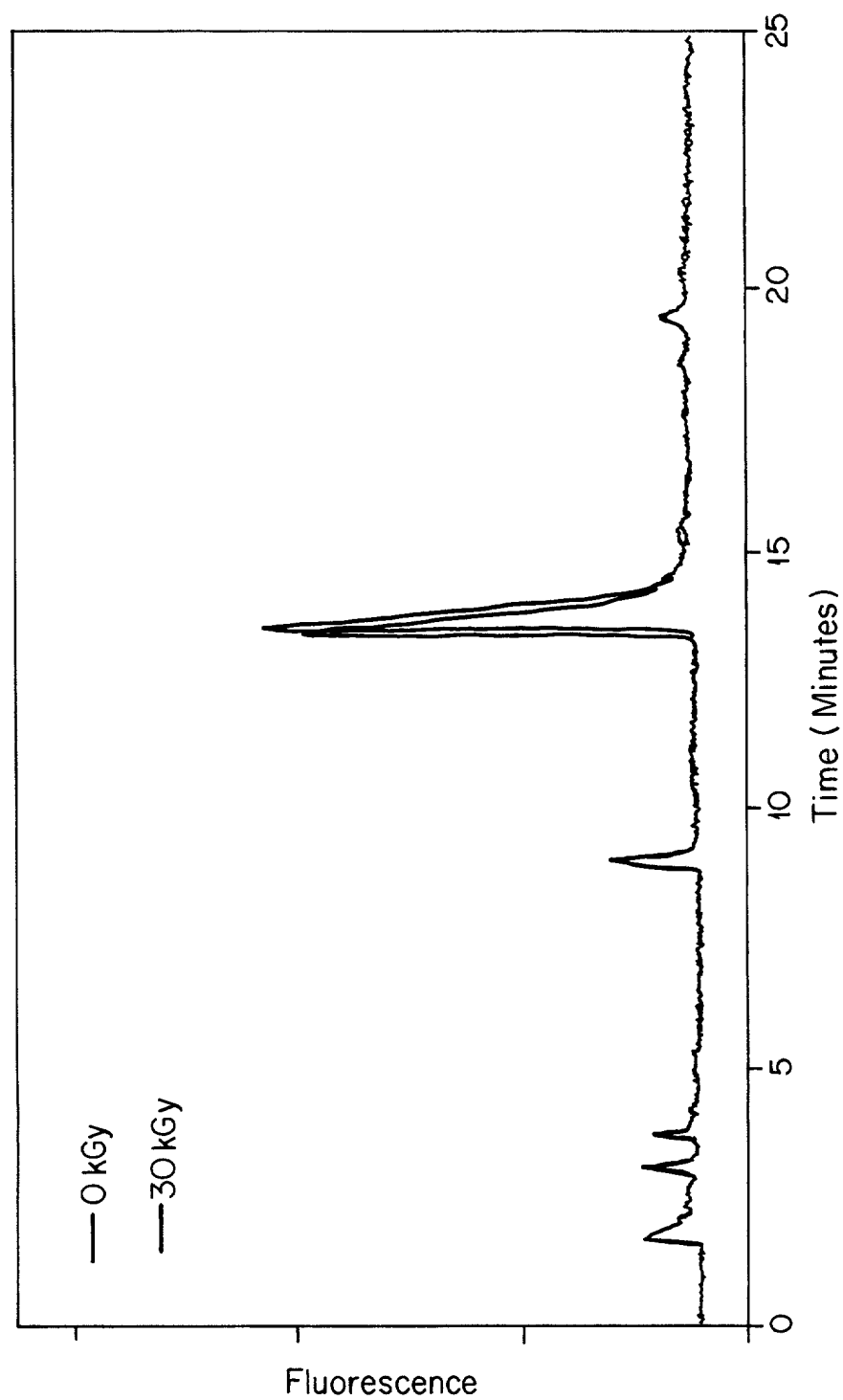


FIG. 2A

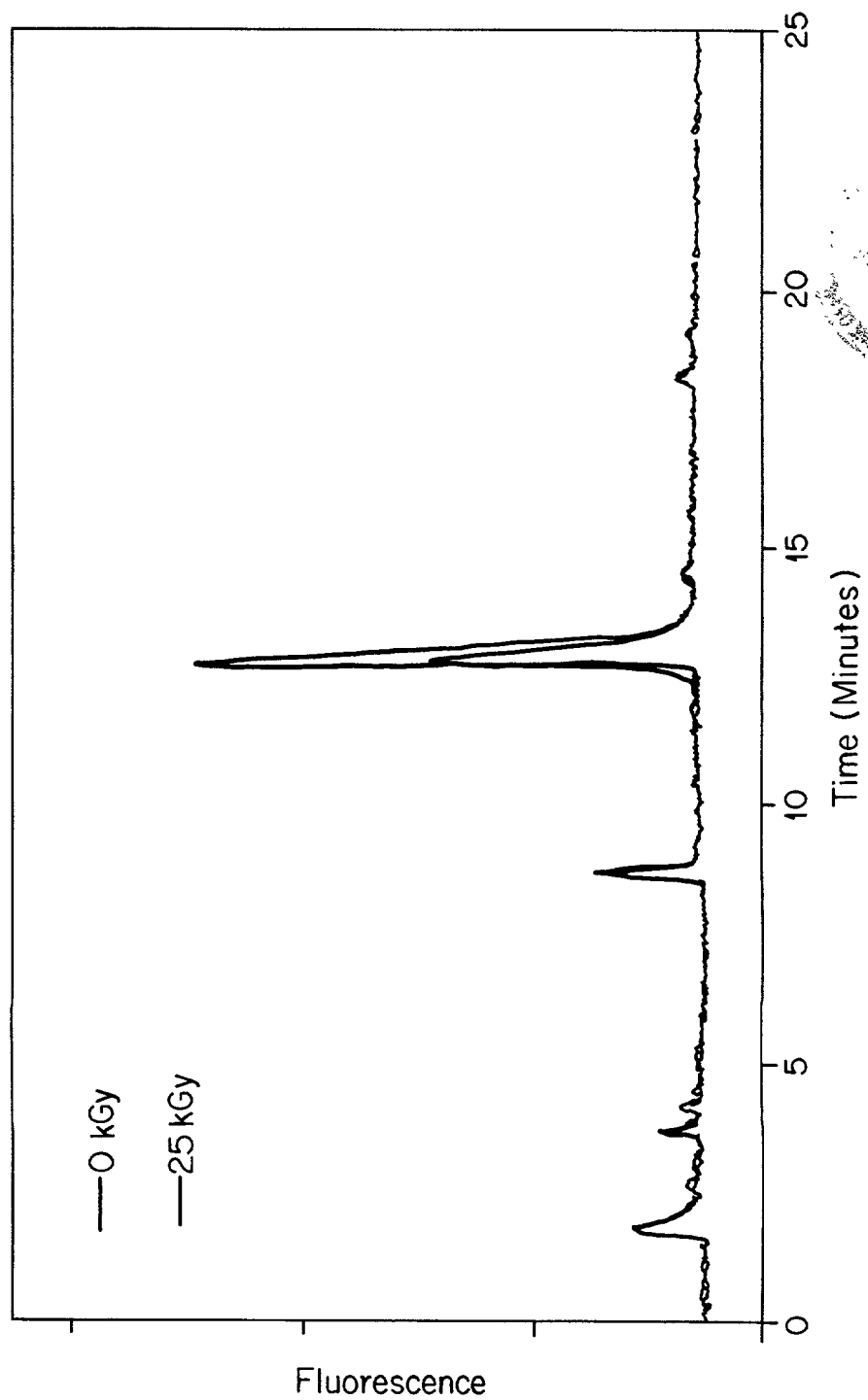


FIG. 2B

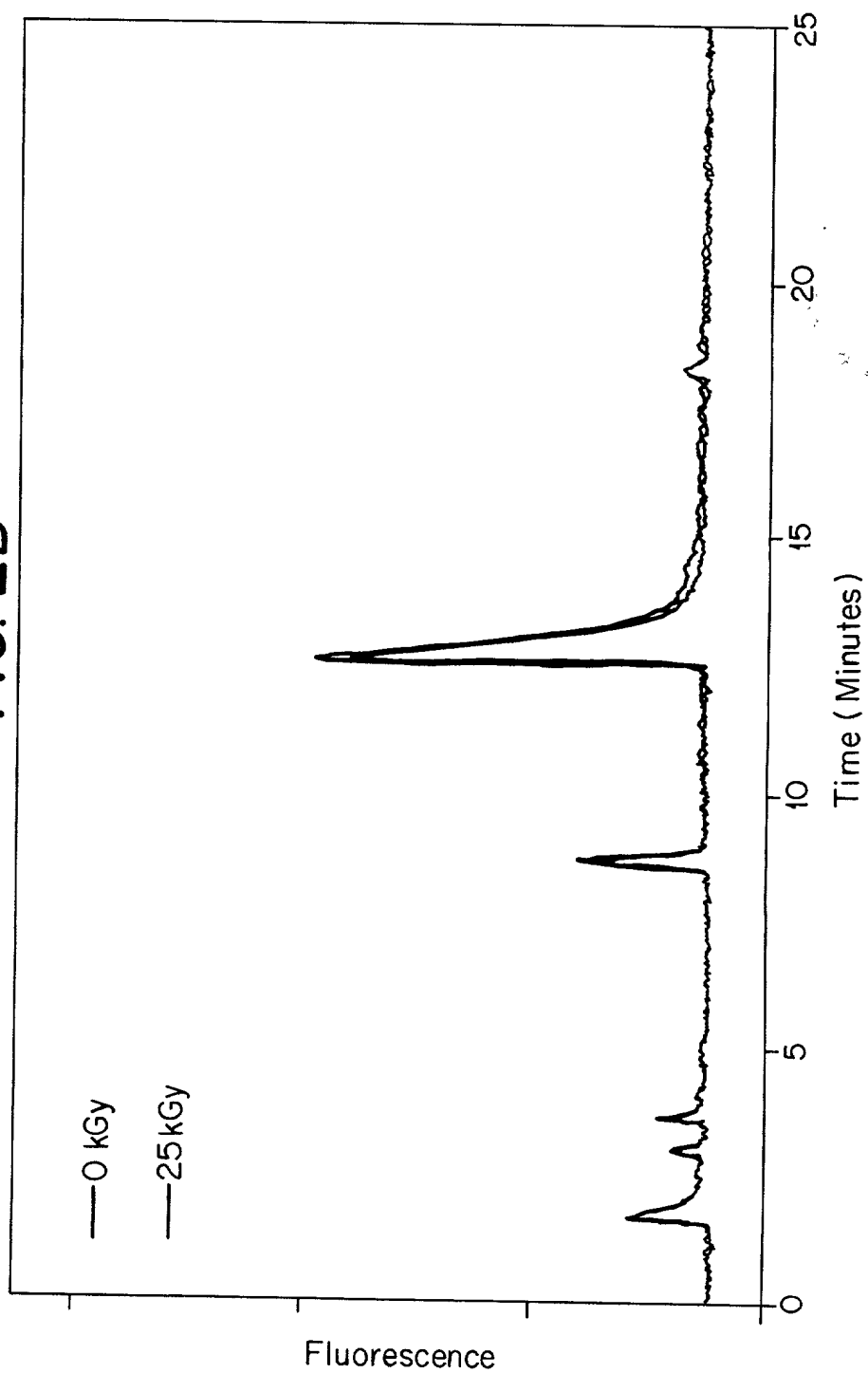


FIG. 1D

REDUCED

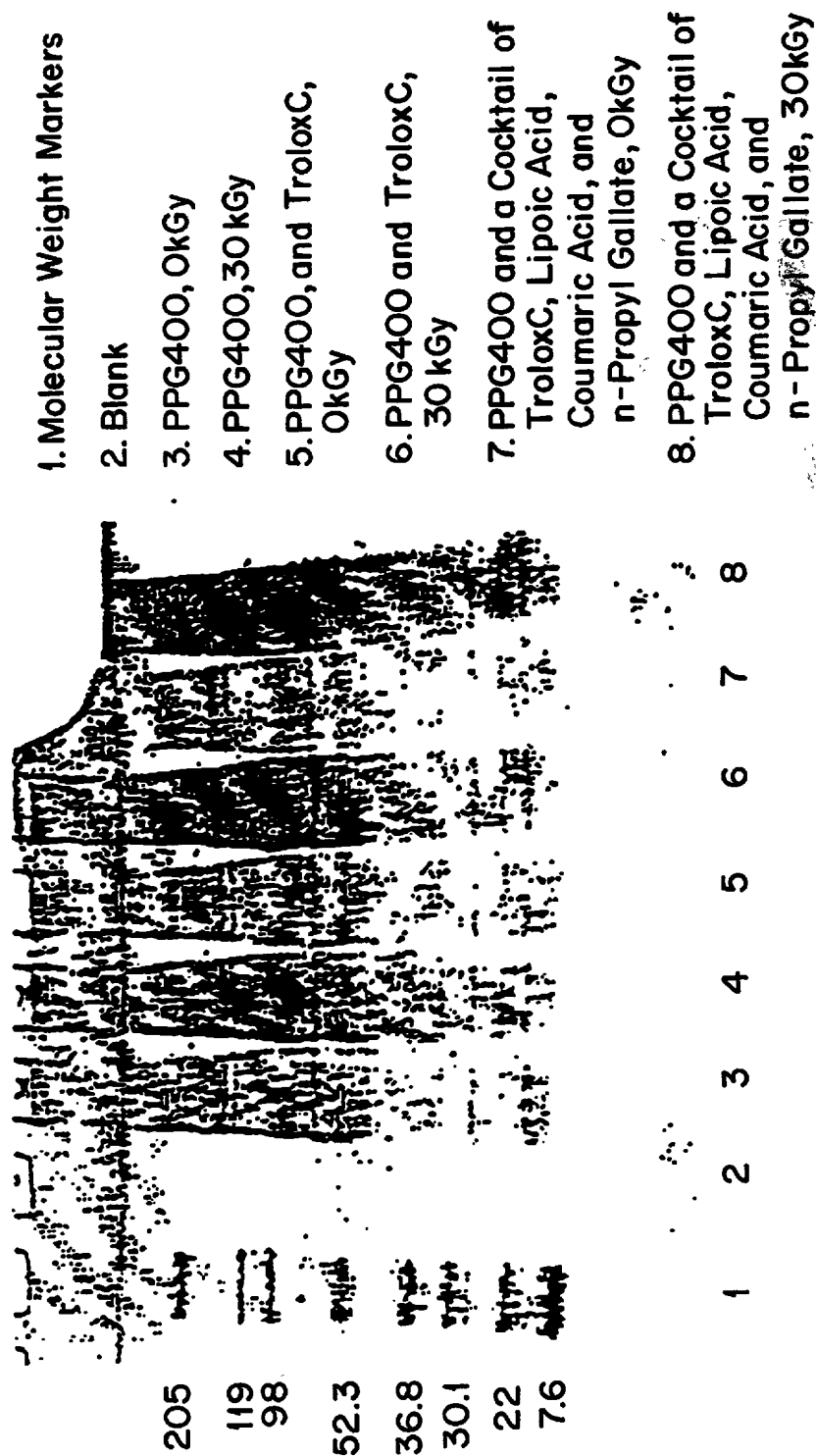


FIG. 2C

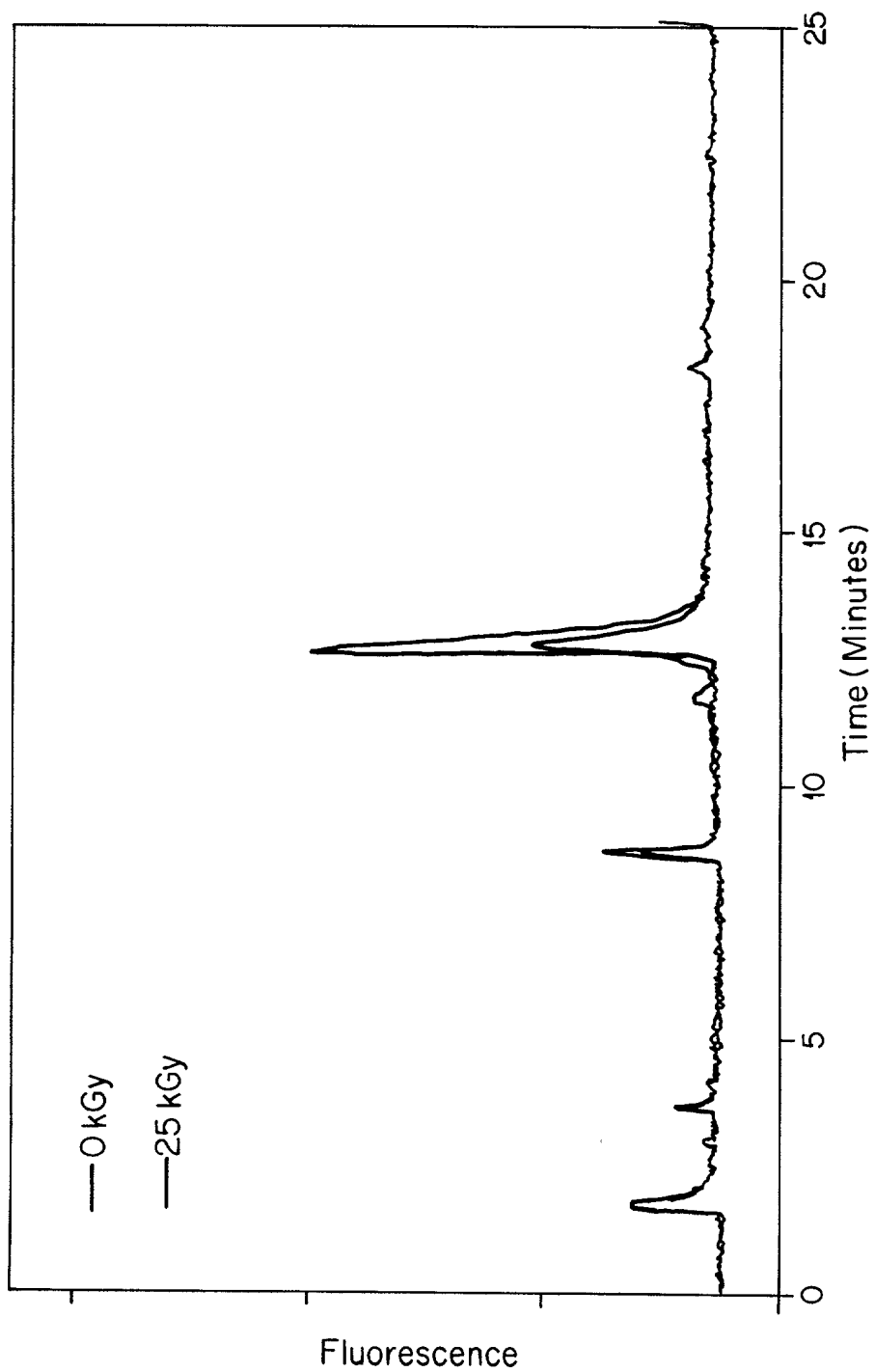


FIG. 2D

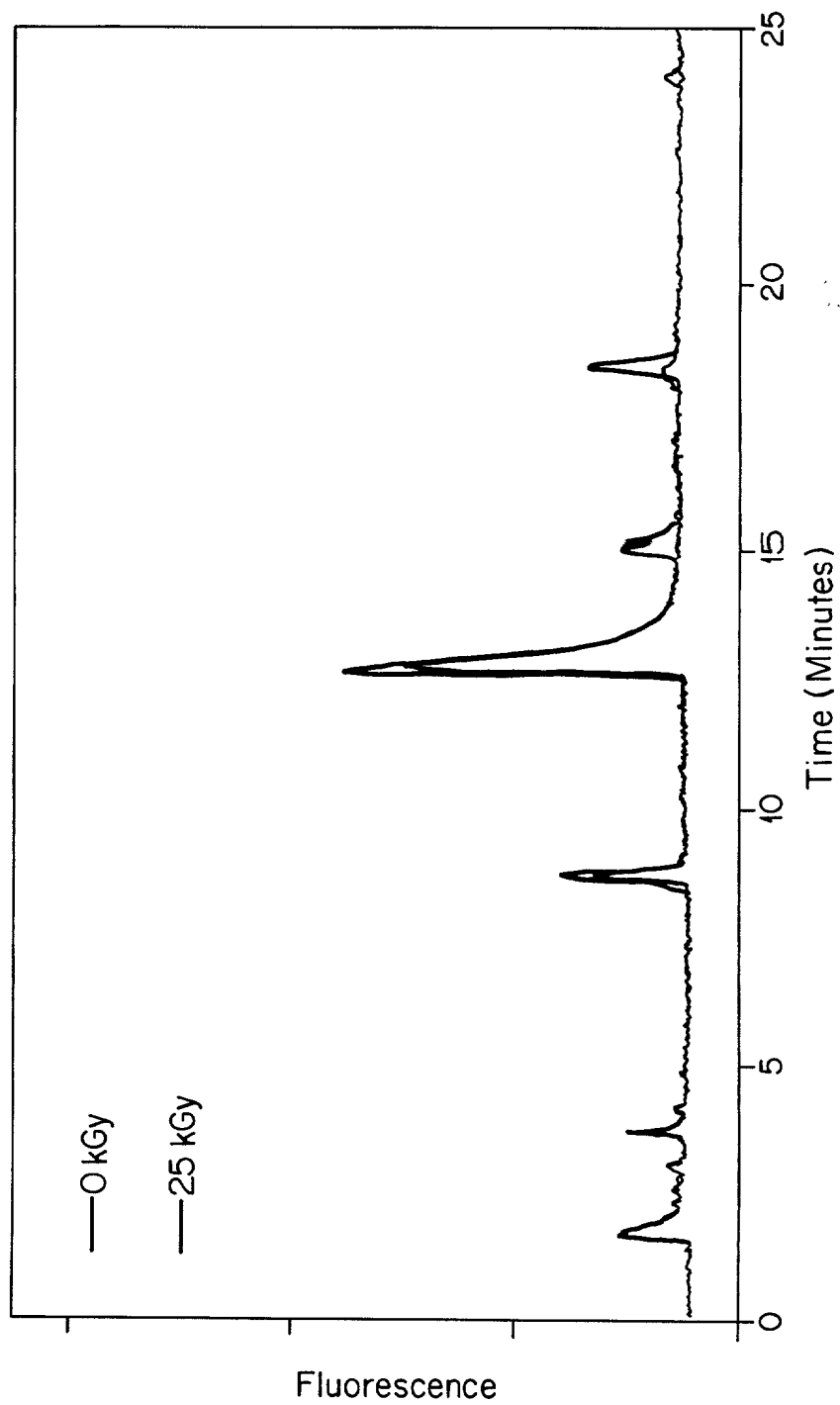




FIG. 2E

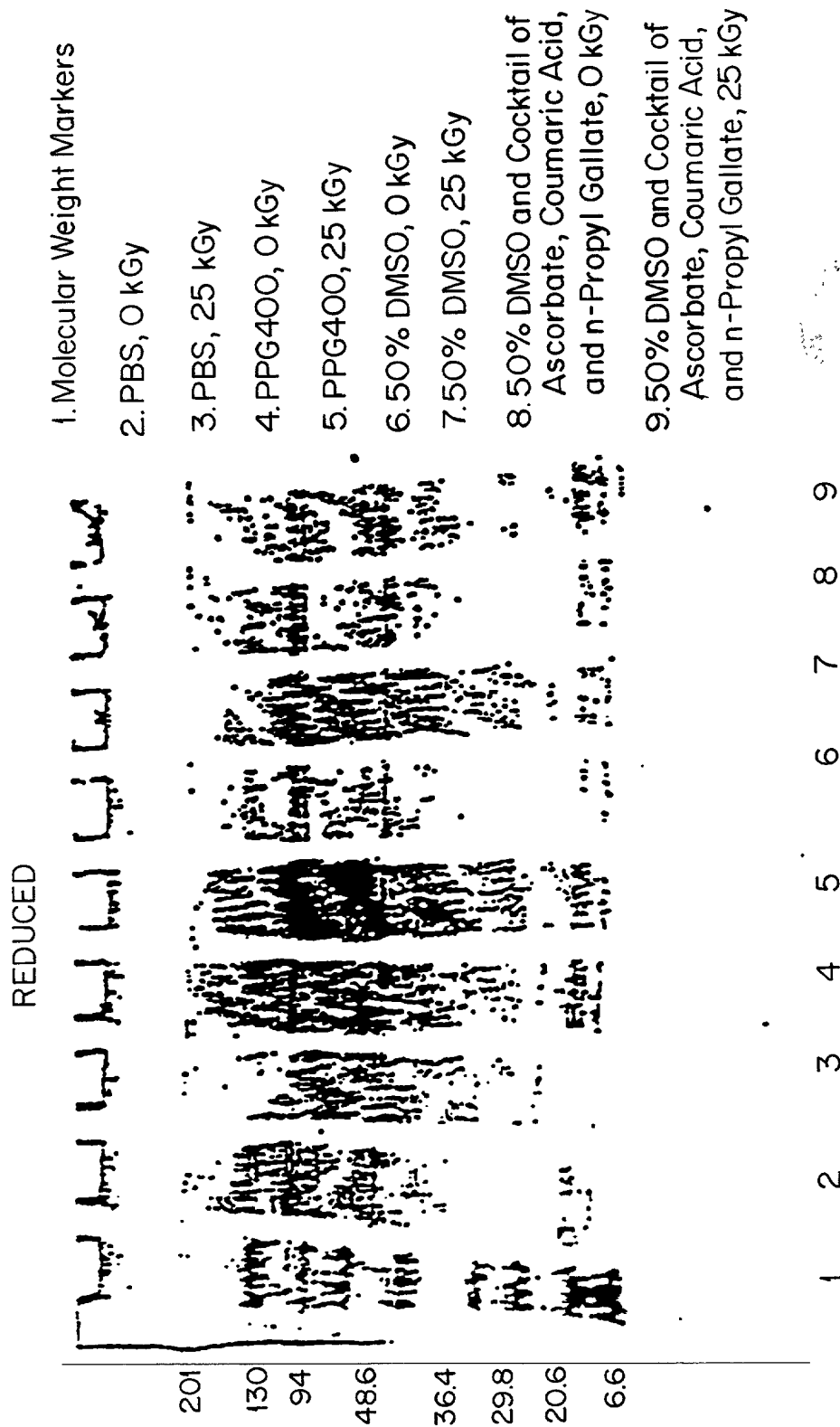


FIG. 3A

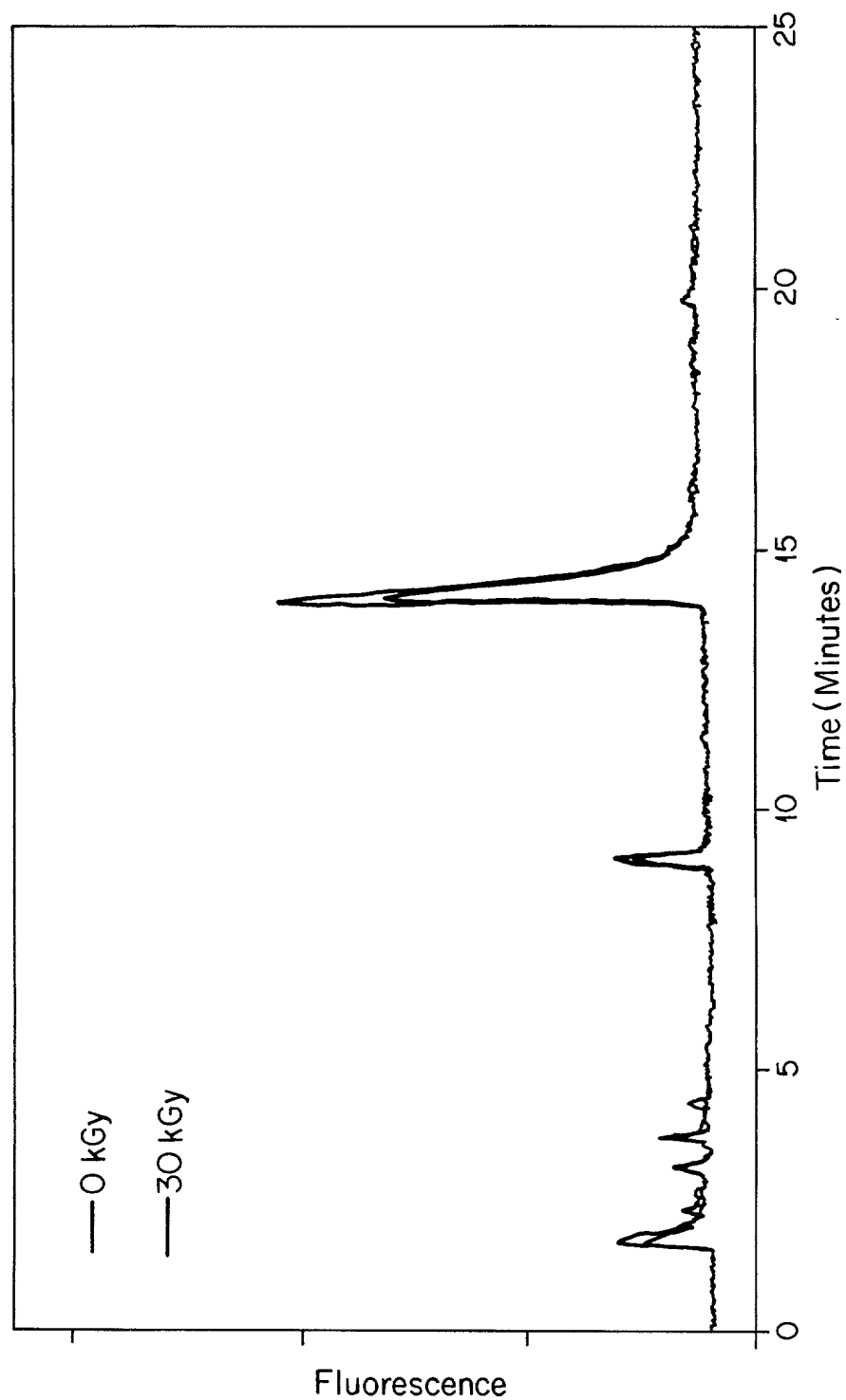


FIG. 3B

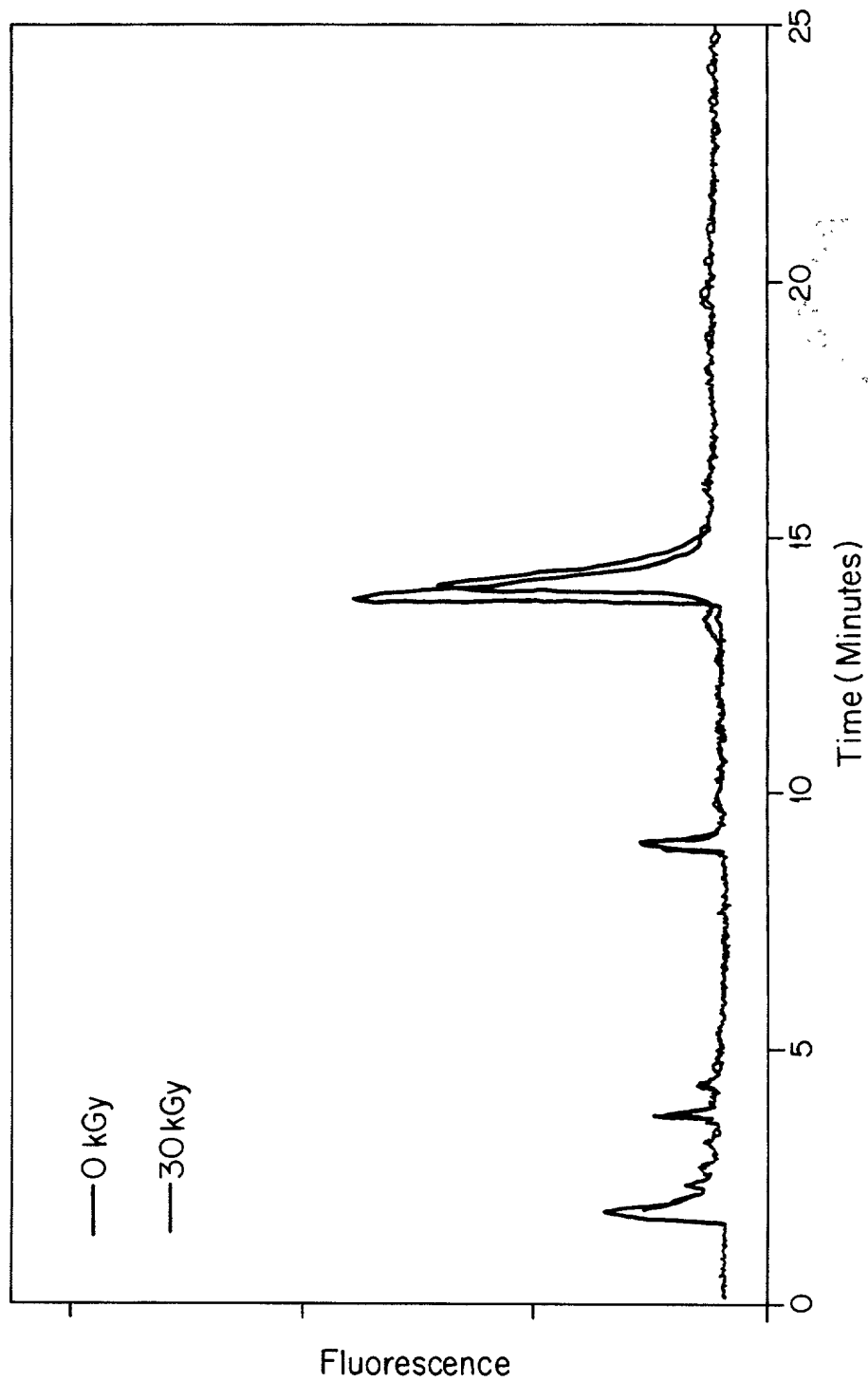


FIG. 3C

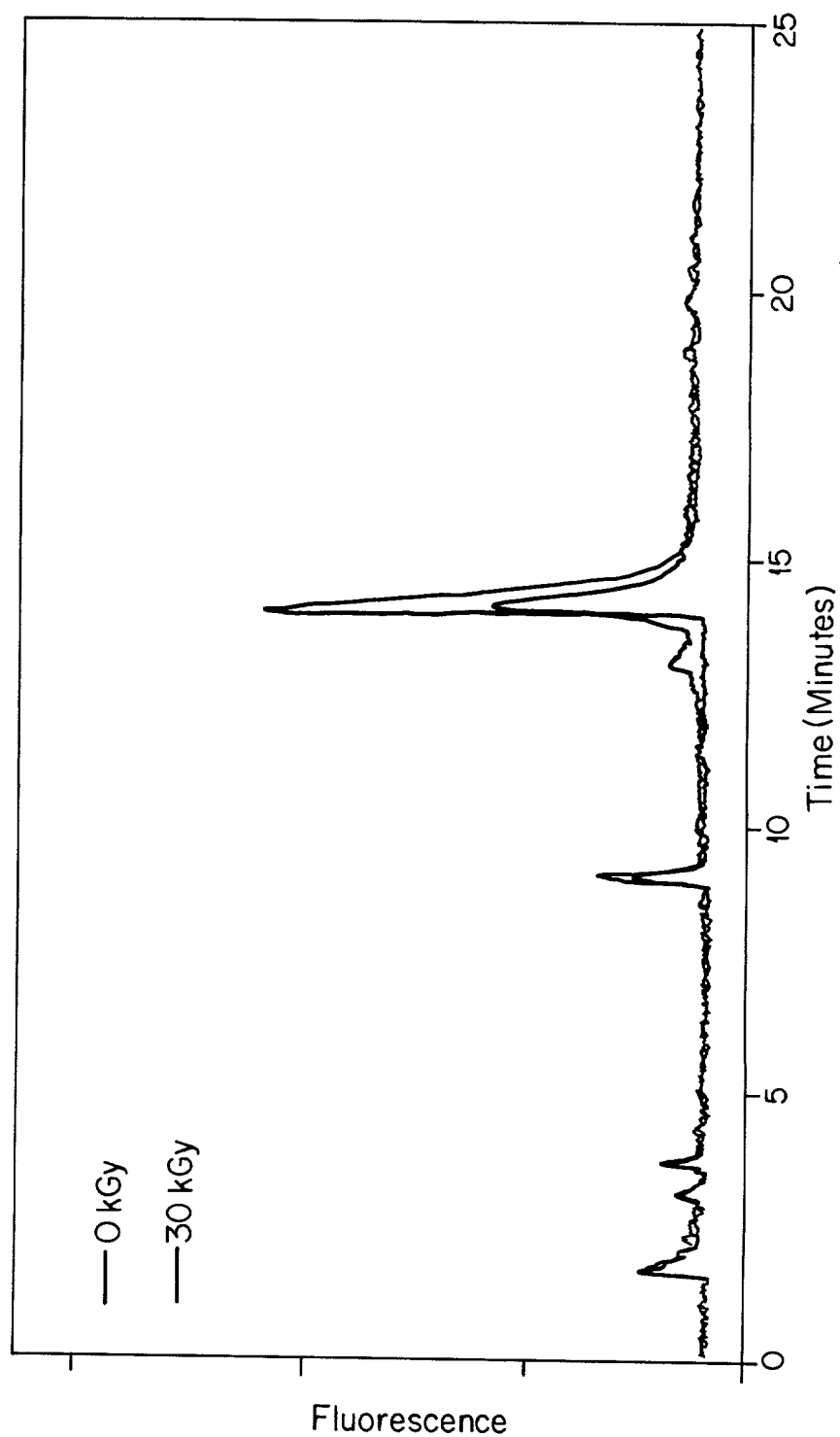
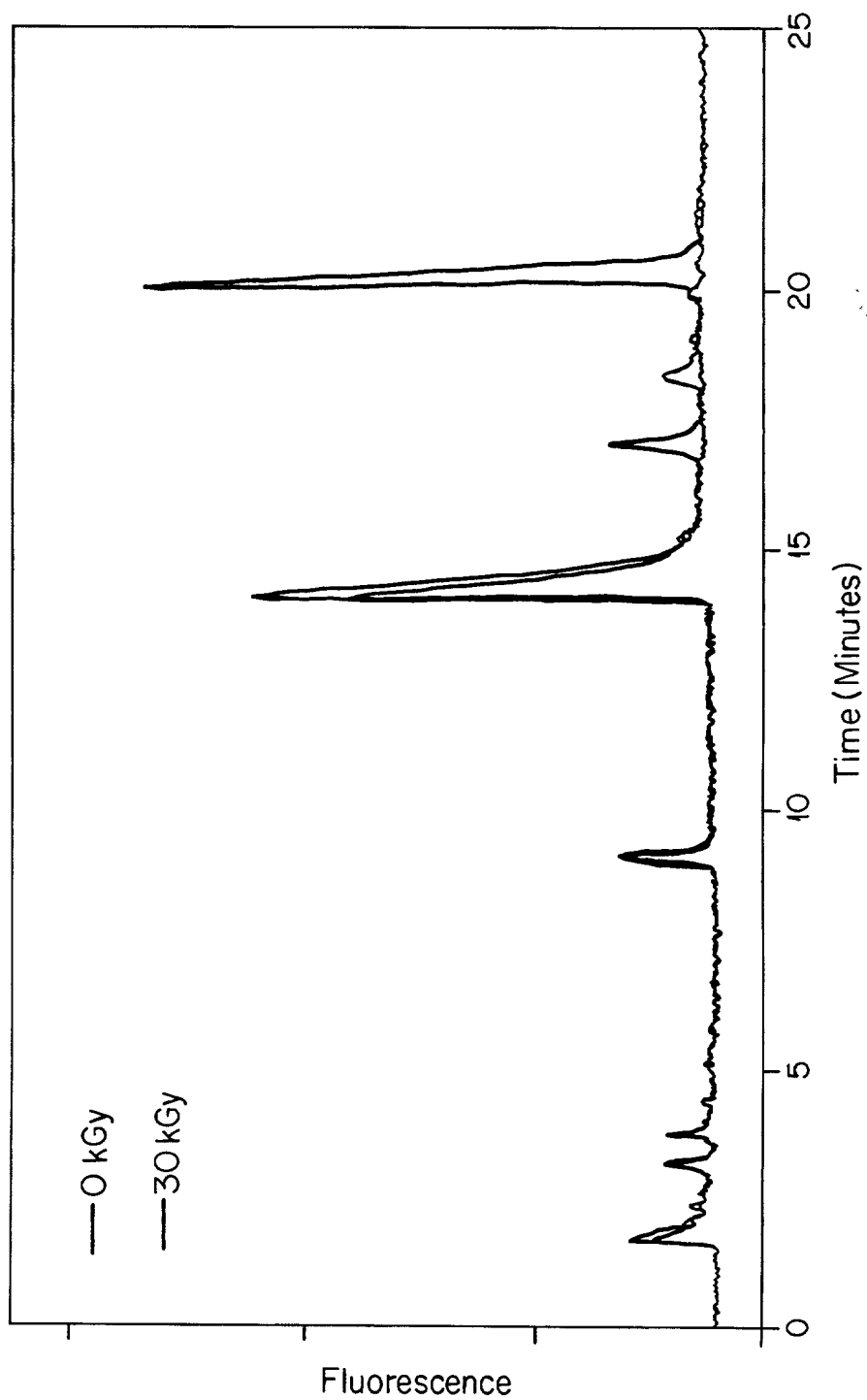


FIG. 3D



REDUCED

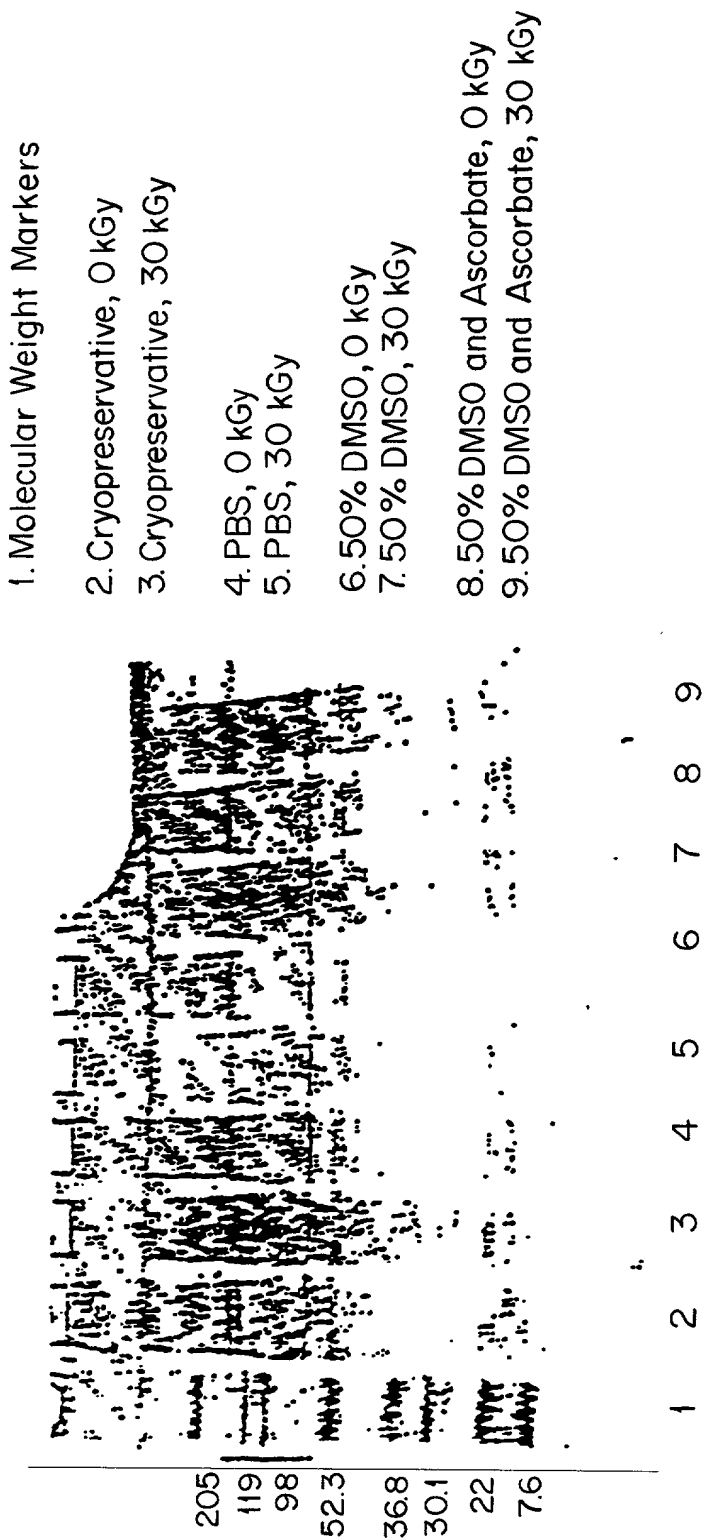


FIG. 4A

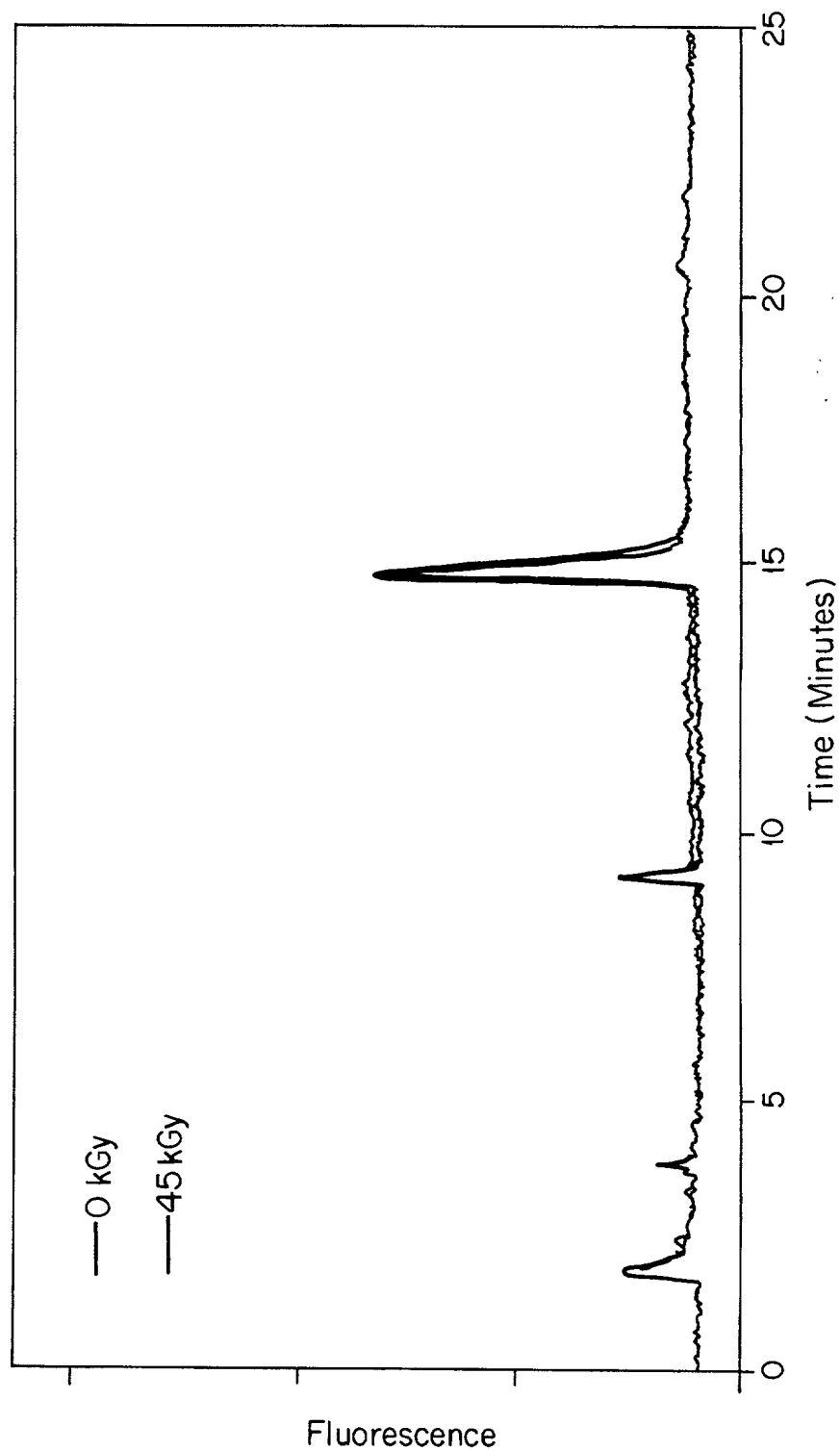


FIG. 4B

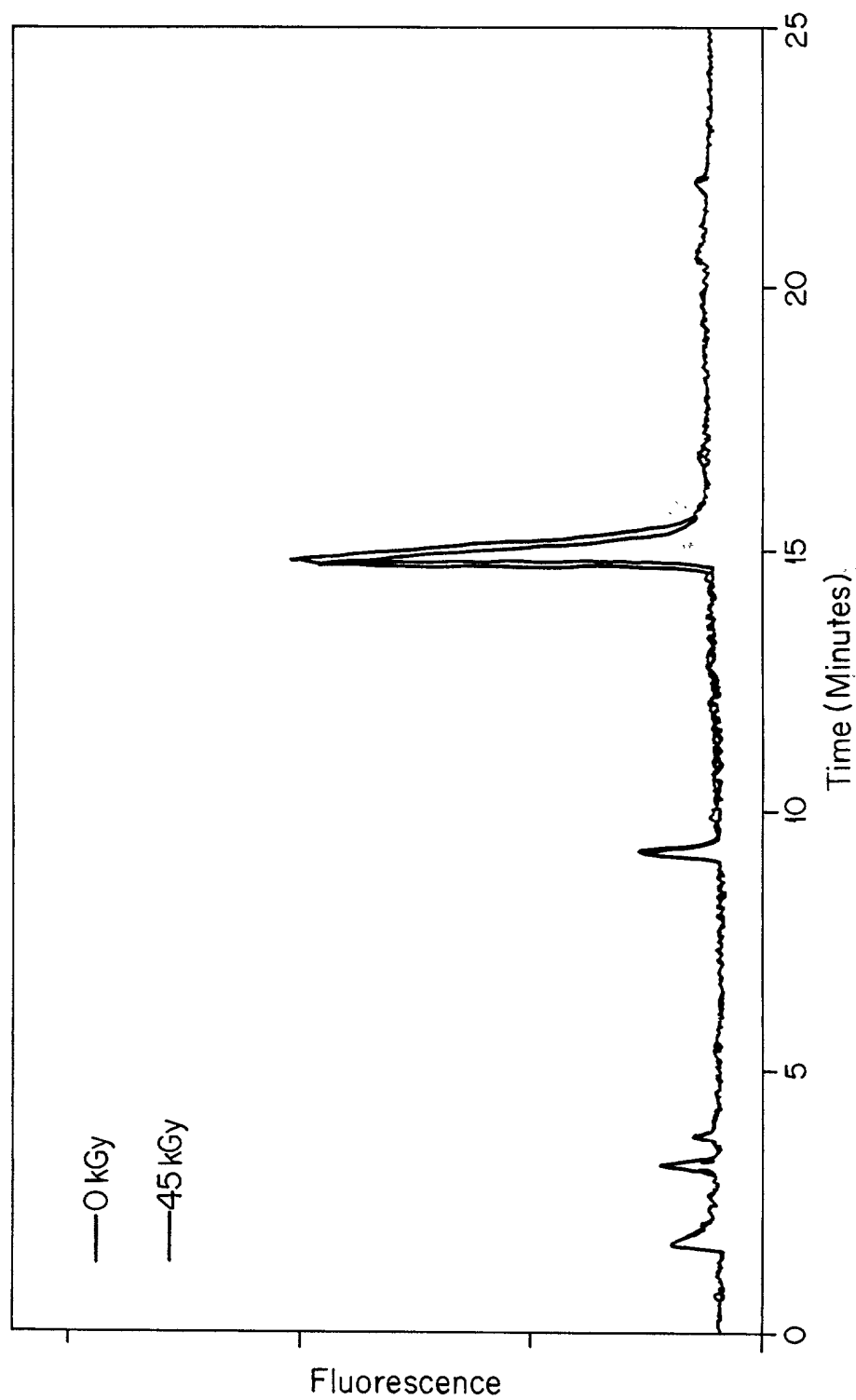




FIG. 4C

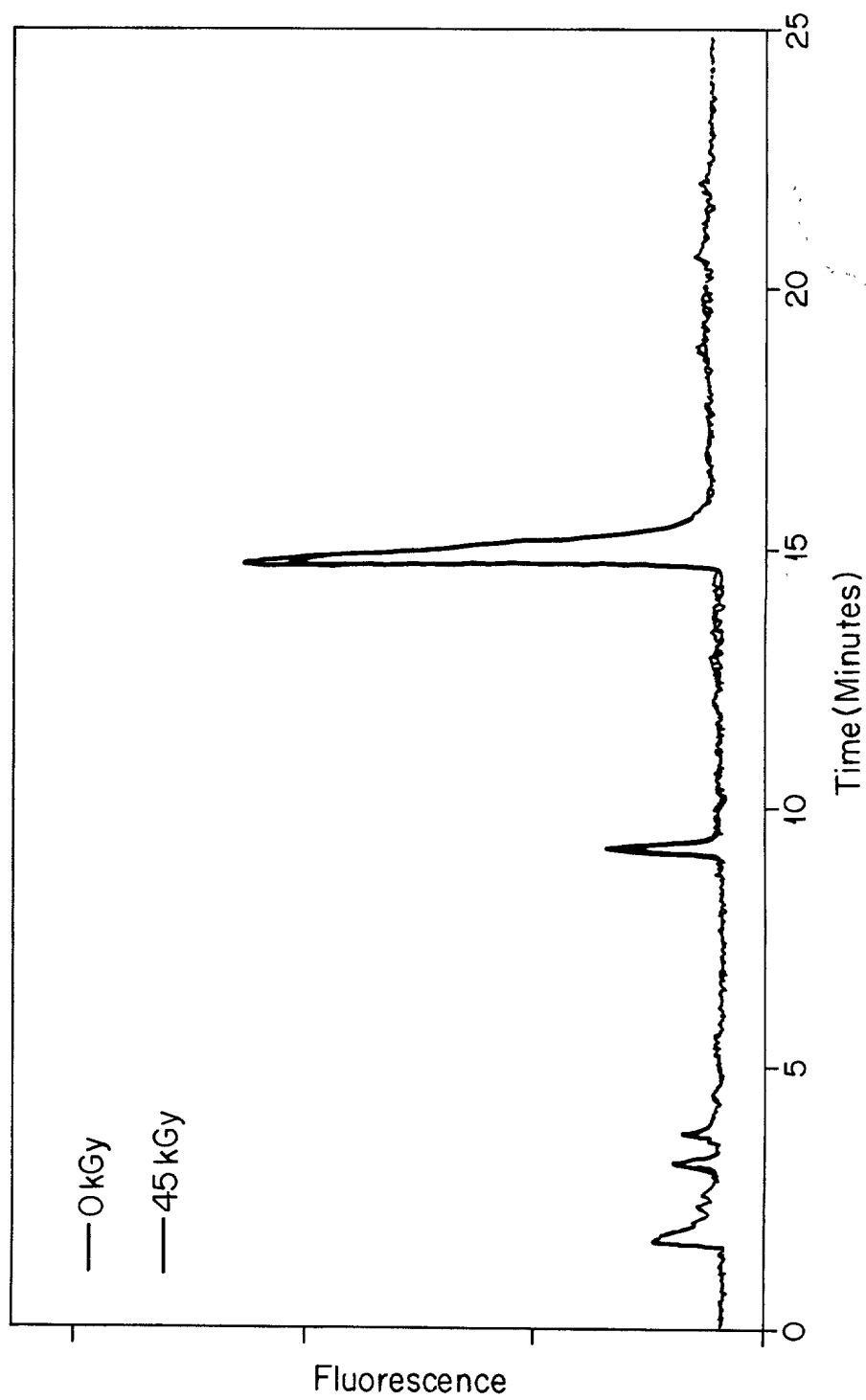


FIG. 4D

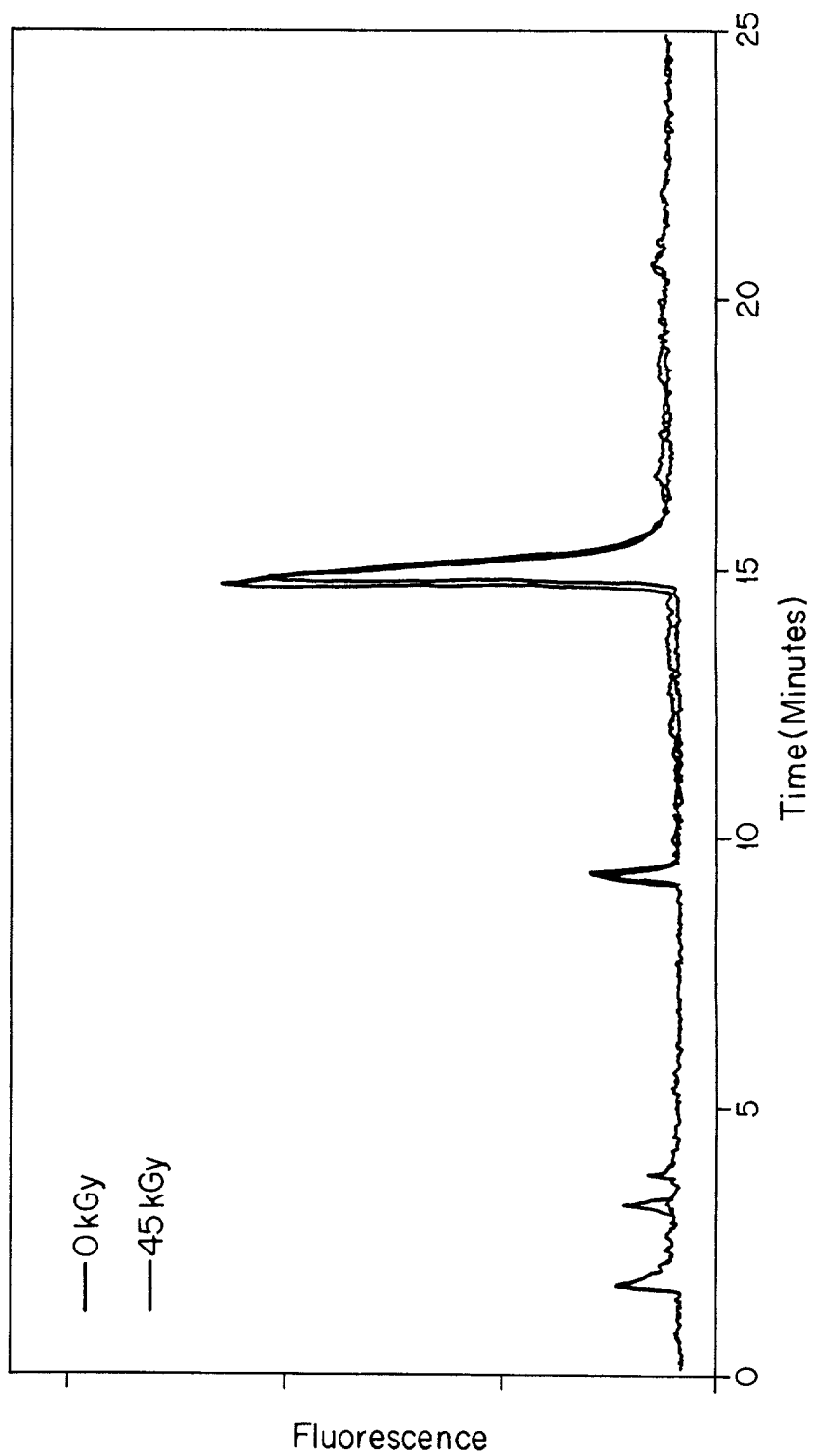


FIG. 4E

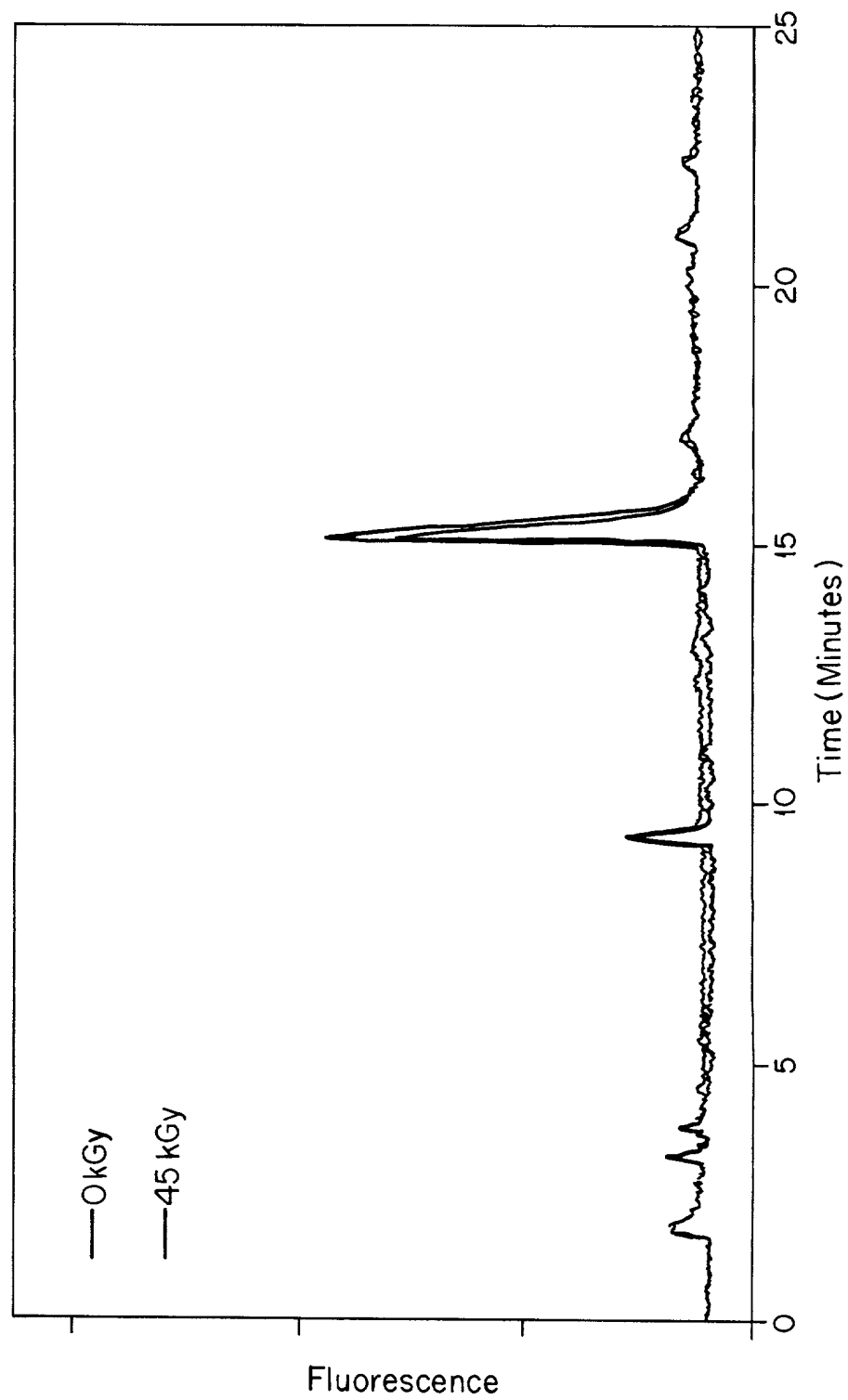
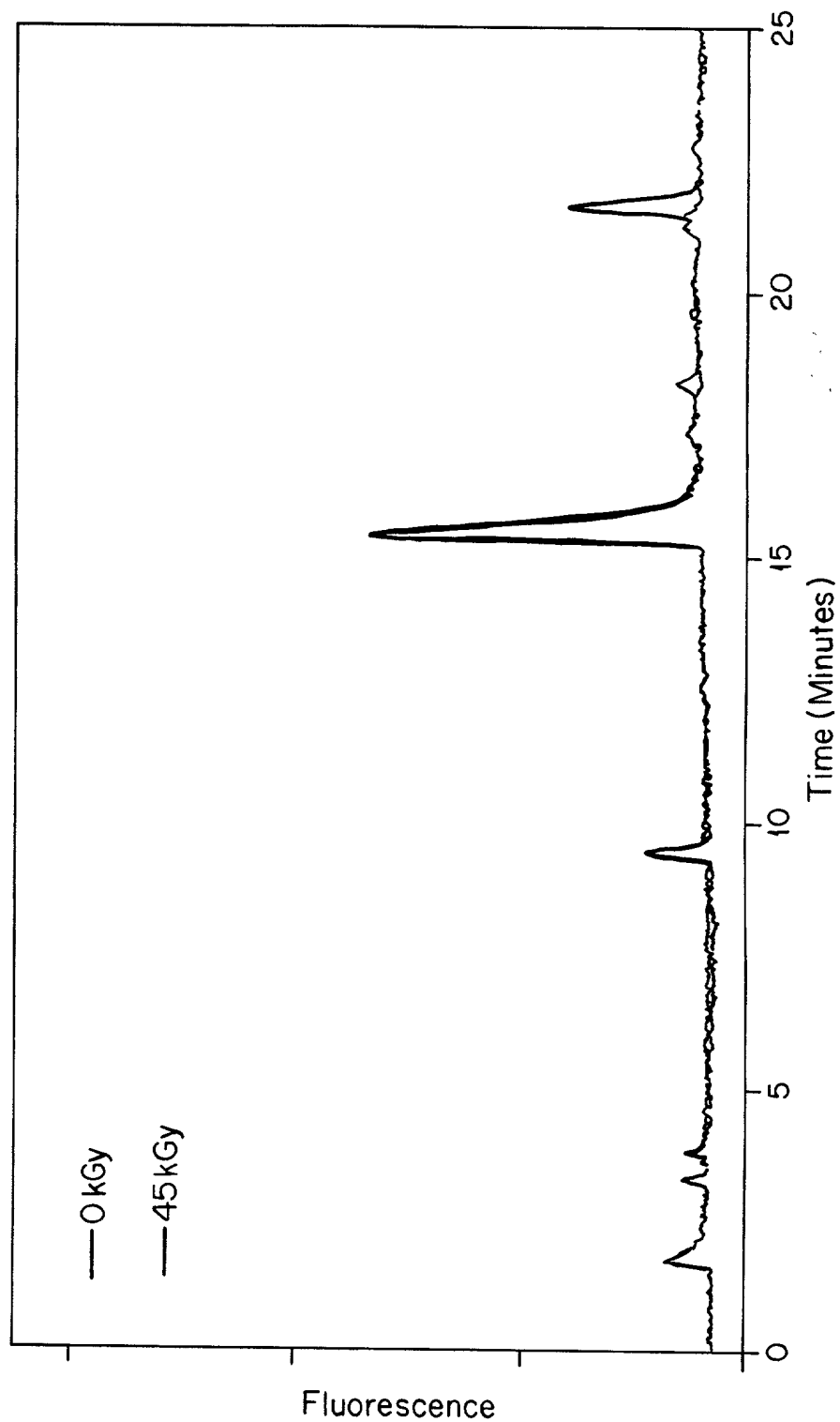
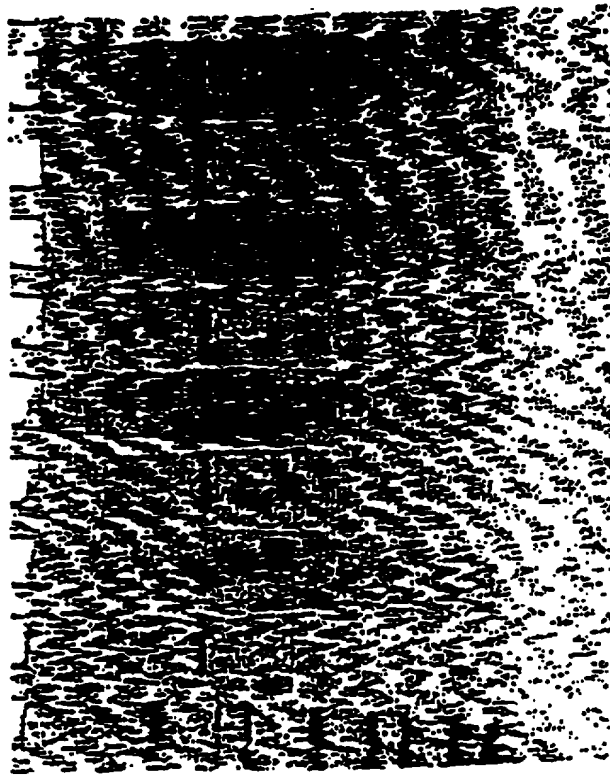


FIG. 4F



**FIG. 4G**

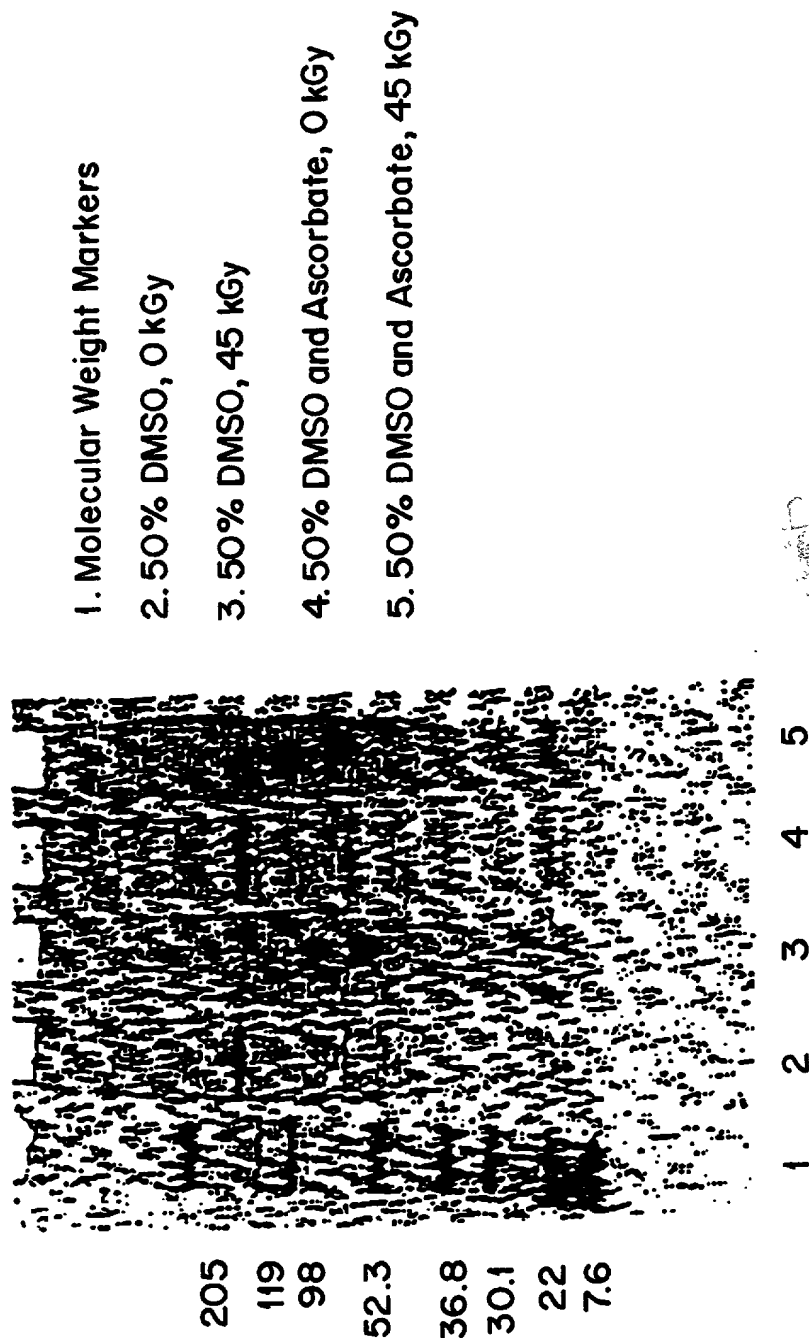
1. Molecular Weight Markers
2. PBS, 0 kGy
3. PBS, 45 kGy
4. PBS and Ascorbate, 0 kGy
5. PBS and Ascorbate, 45 kGy
6. PPG400, 0 kGy
7. PPG400, 45 kGy
8. Dehydrated in PPG400 and Rehydrated with PBS and Ascorbate, 0 kGy
9. Dehydrated in PPG400 and Rehydrated with PBS and Ascorbate, 45 kGy



205  
119  
98  
52.3  
36.8  
30.1  
22  
7.6

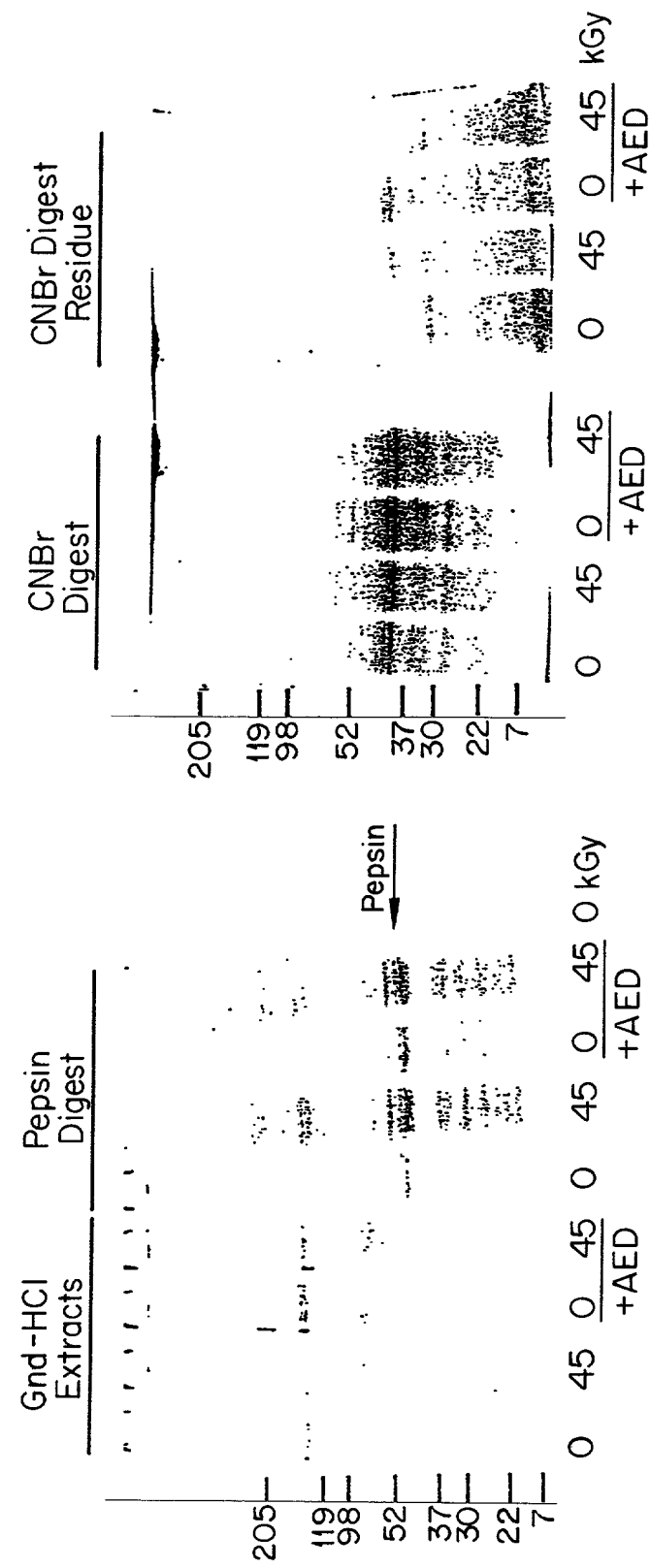
1 2 3 4 5 6 7 8 9

FIG. 4H



Handwritten signature or mark.

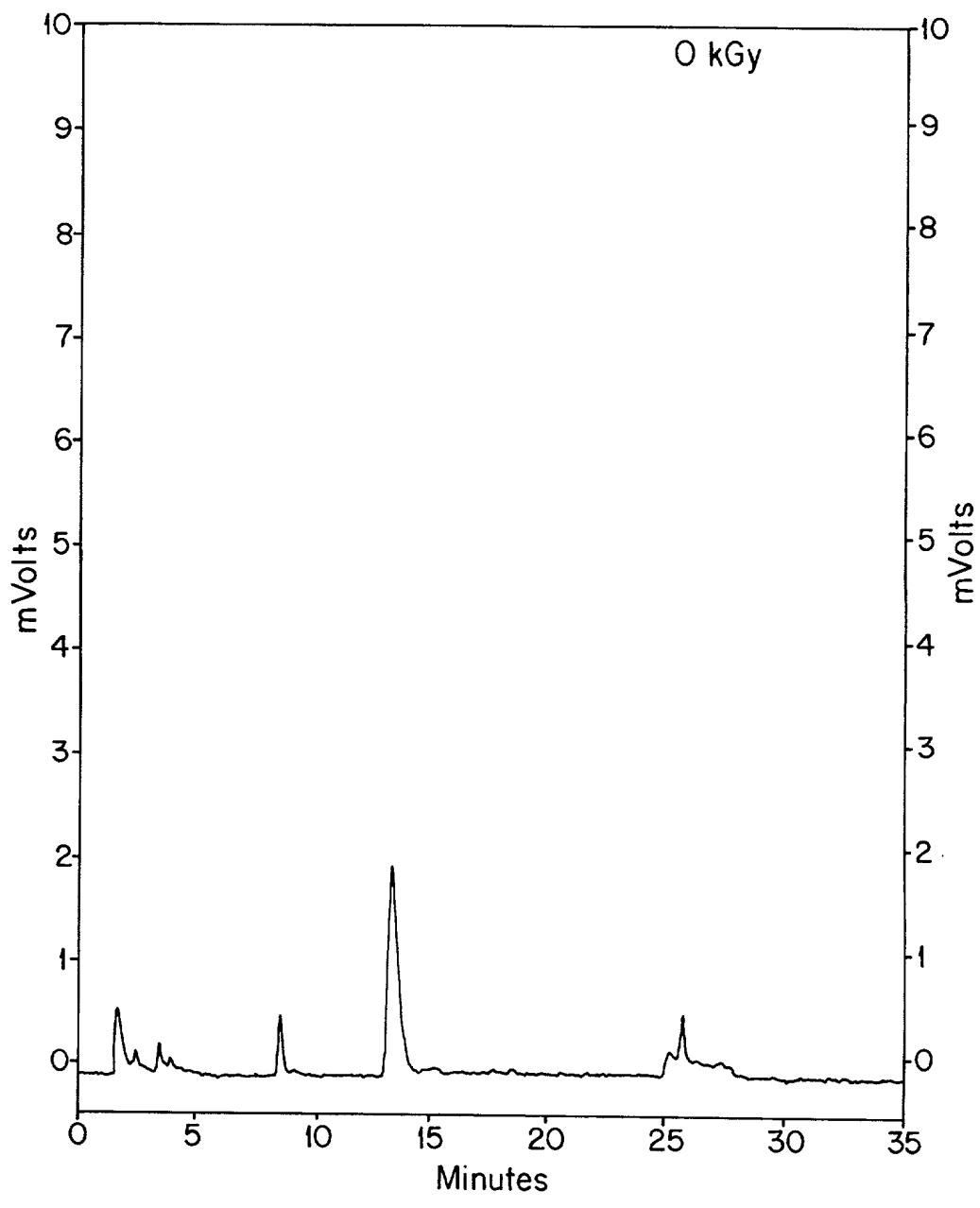
FIG. 5A



AED=100 mM Ascorbate, 22 mM Ergothionine, 100 mM Deferoxamine

2021 09 08 05:12:02 10050208.051202

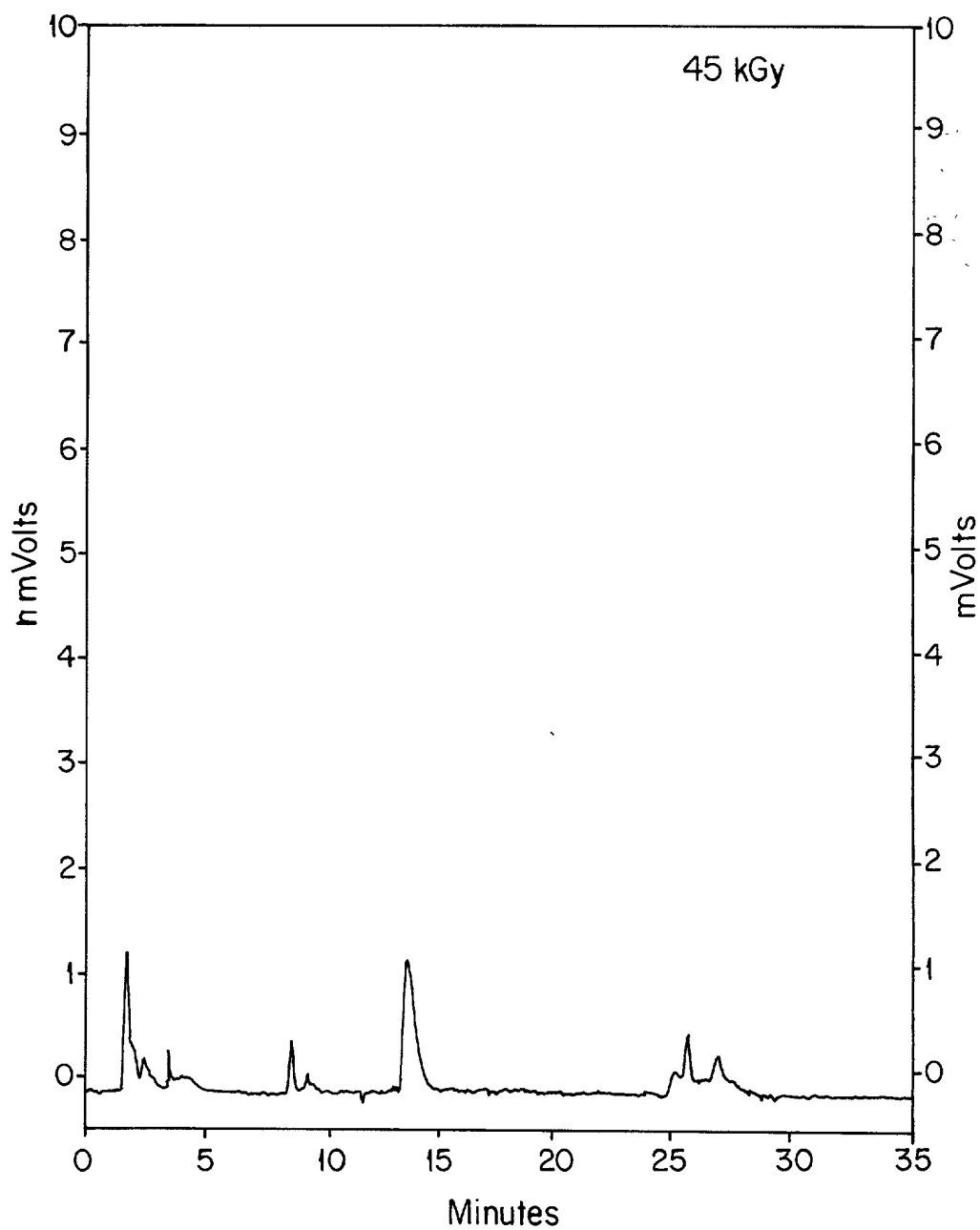
**FIG. 5B**





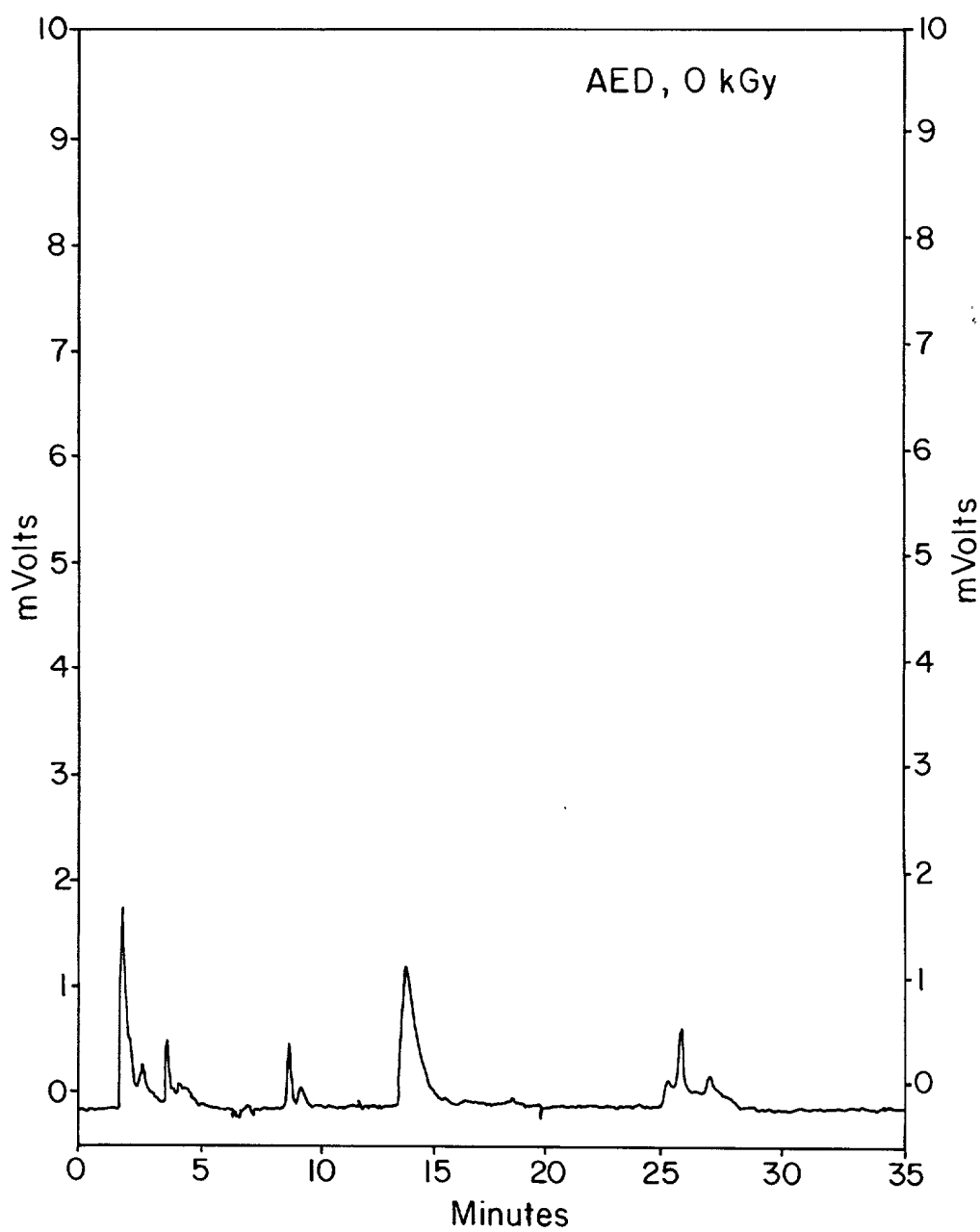
20210908 06:12:02

**FIG. 5C**



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FIG. 5D



**FIG. 5E**

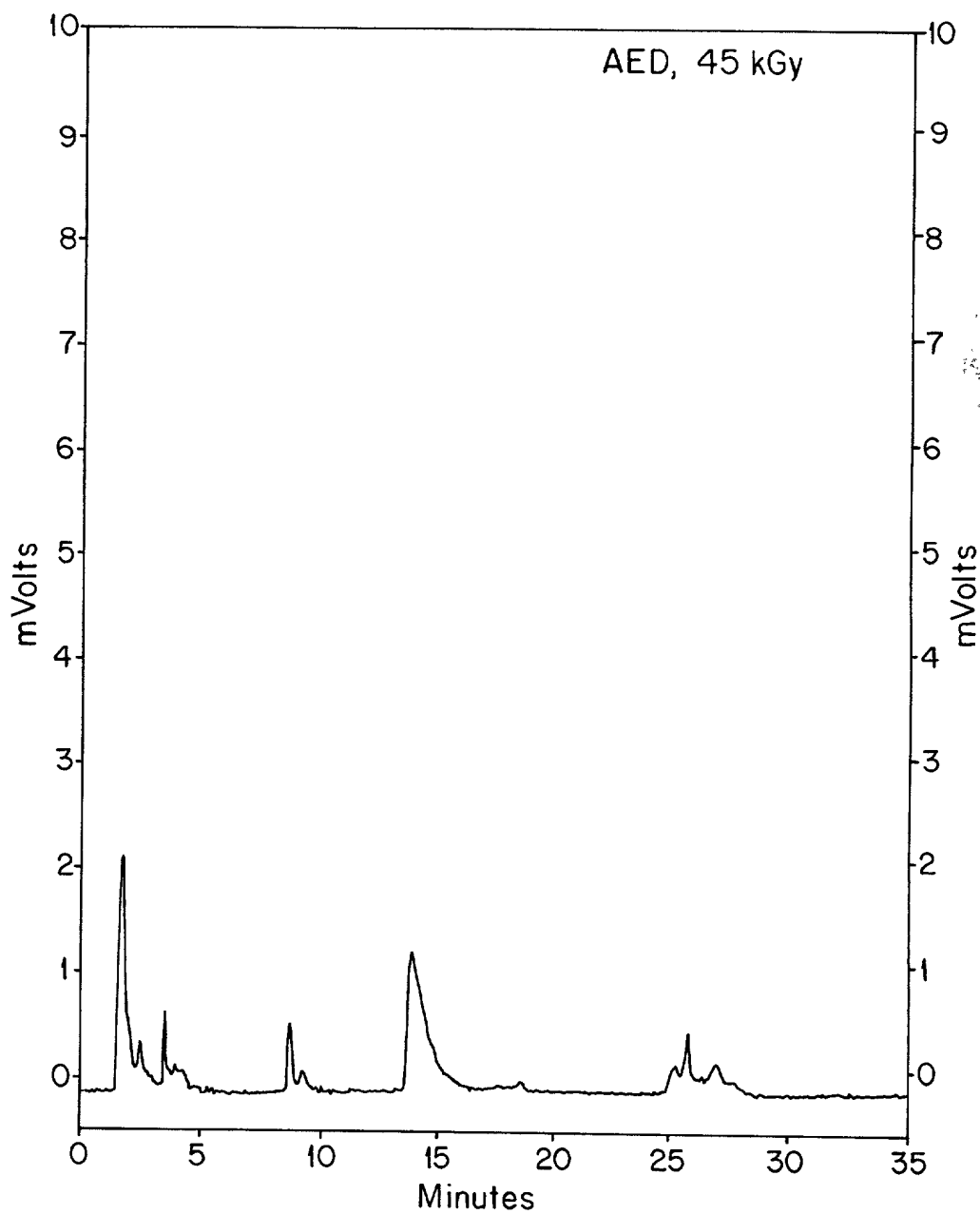
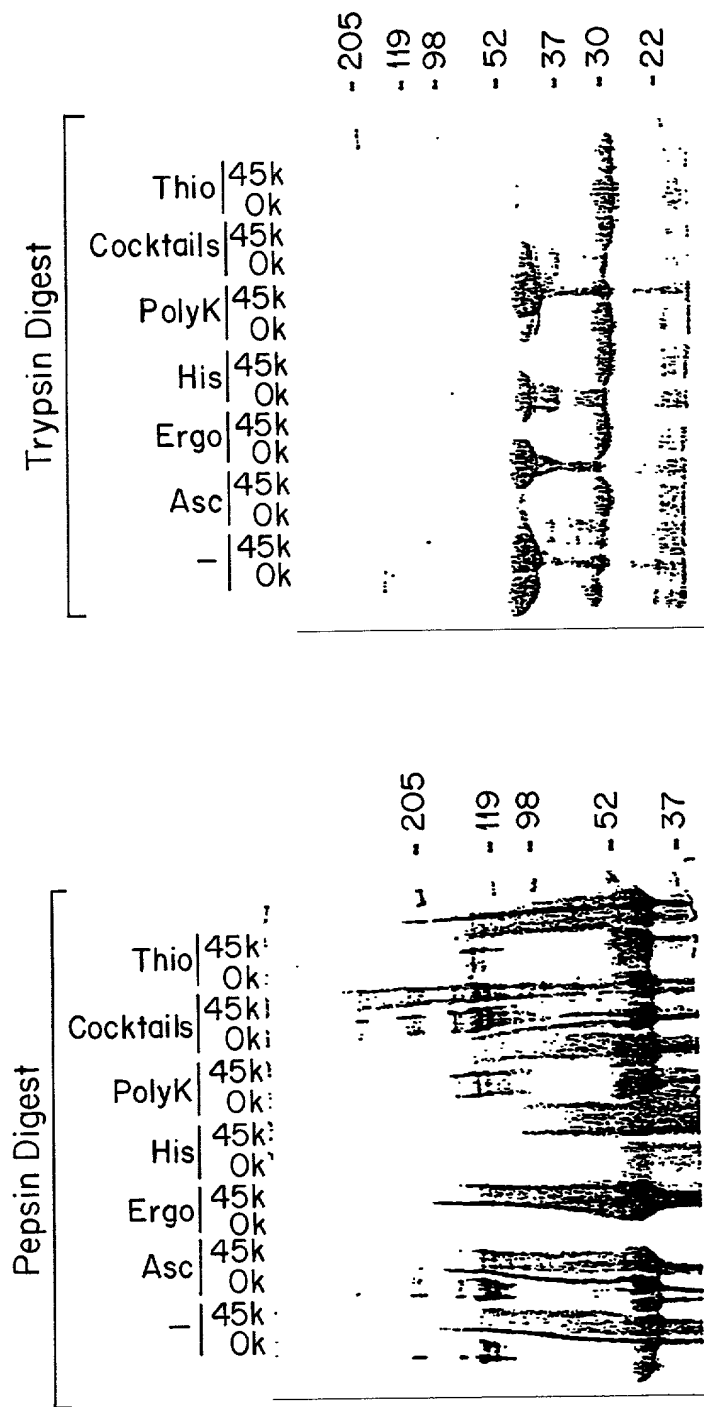
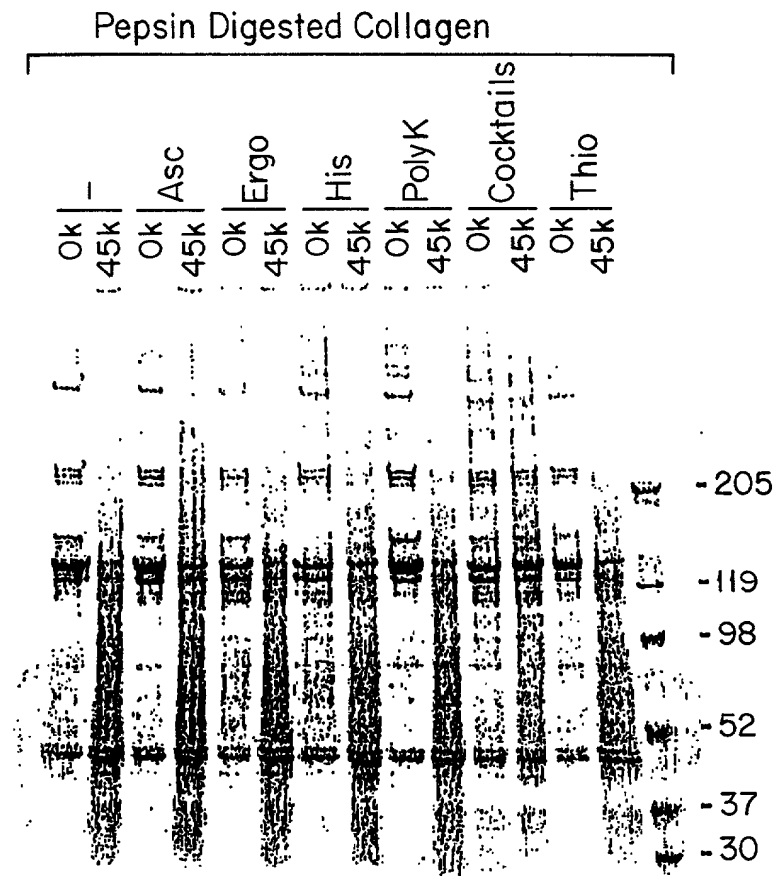


FIG. 6A

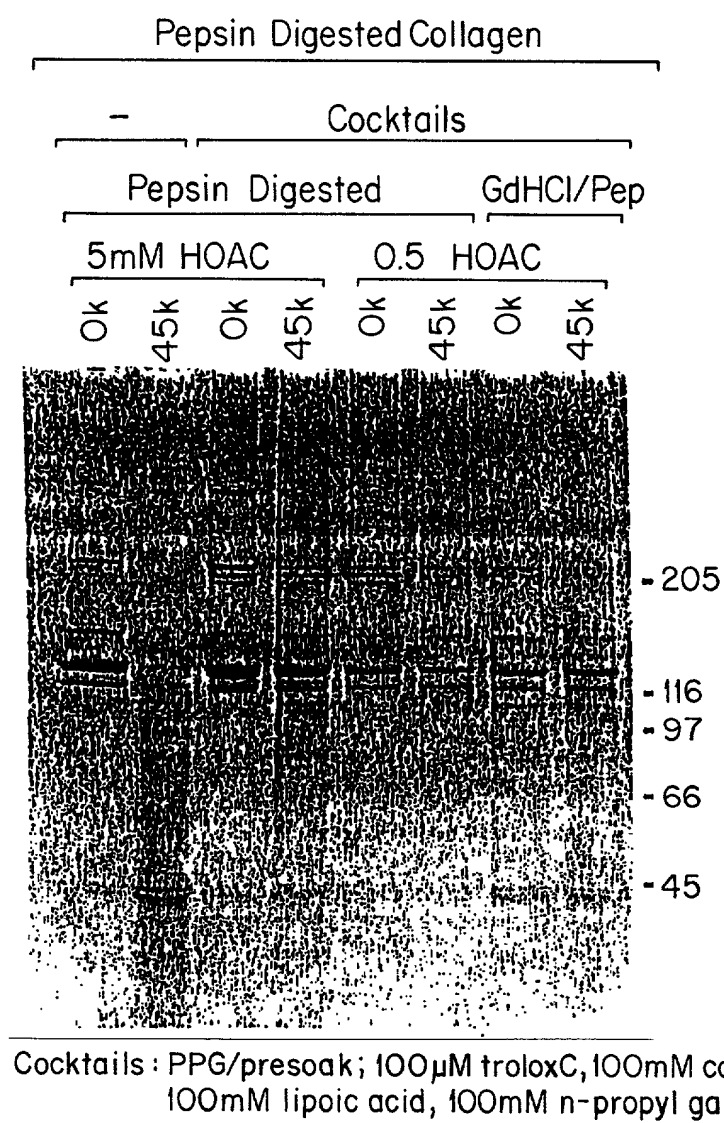


**FIG. 6B**



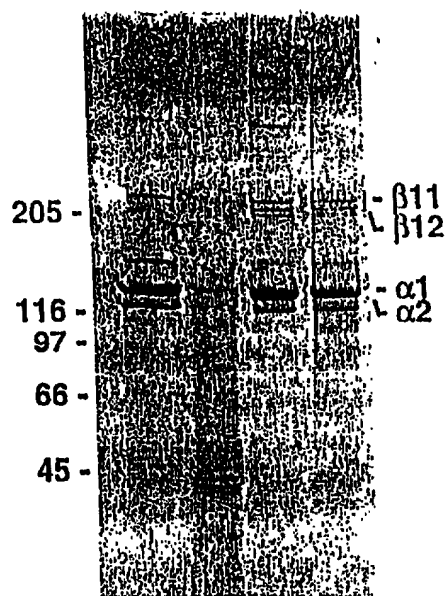
Cocktails: PPG/presoak; 100  $\mu$ M troloxC, 100mM courmeric acid, 100mM lipoic acid, 100mM n-propyl gallate

**FIG. 6C**



**FIG. 6D**

Protectants: PPG/presoak;  
100 $\mu$ M trolox<sup>C</sup>,  
100mM courmeric acid,  
100mM lipoic acid, and  
100mM n-propyl gallate



Dose (kGy)	0	45	0	45
Protectants	(-)	(-)	(+)	(+)

FIG. 6E

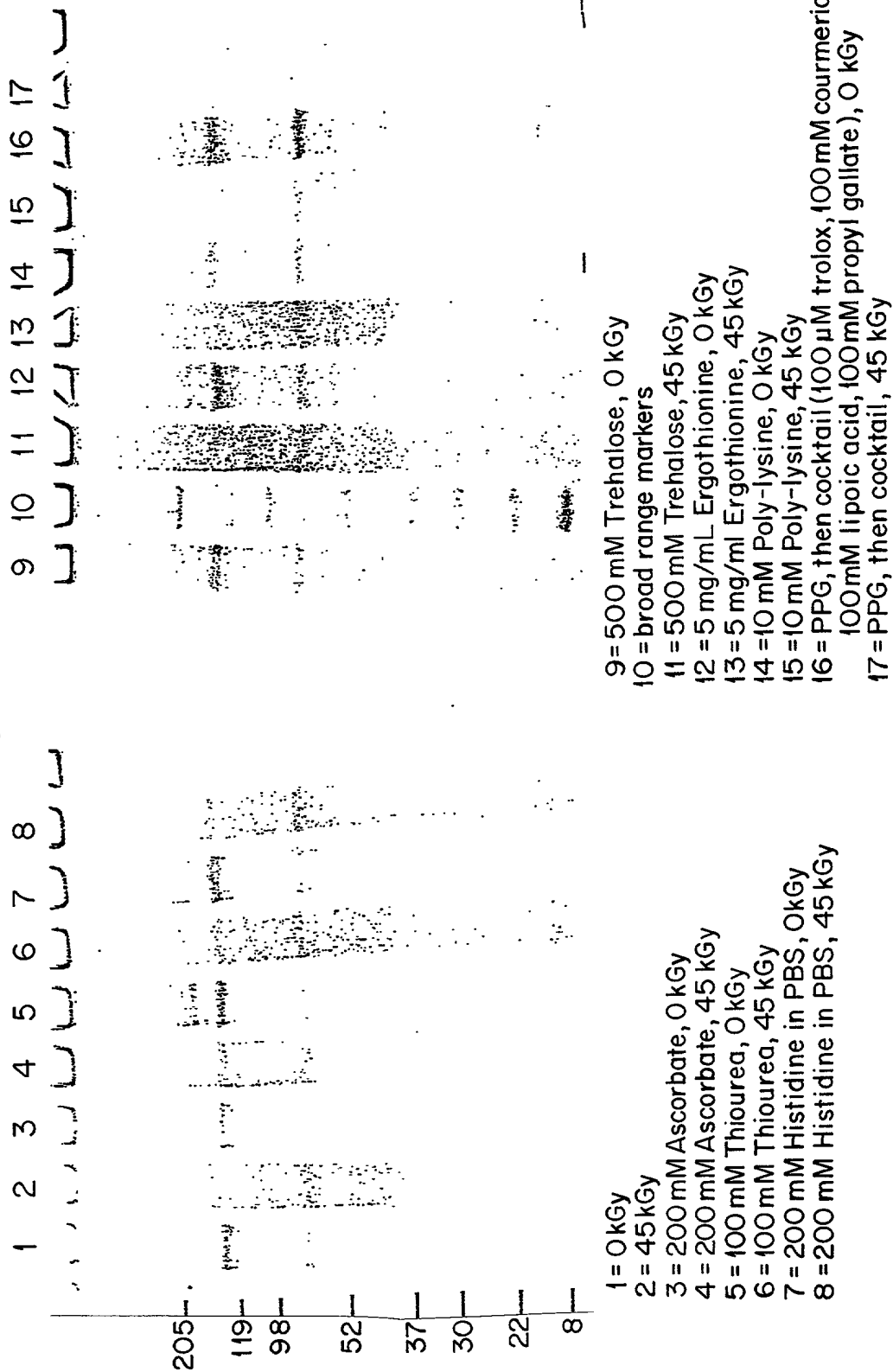




FIG. 6F

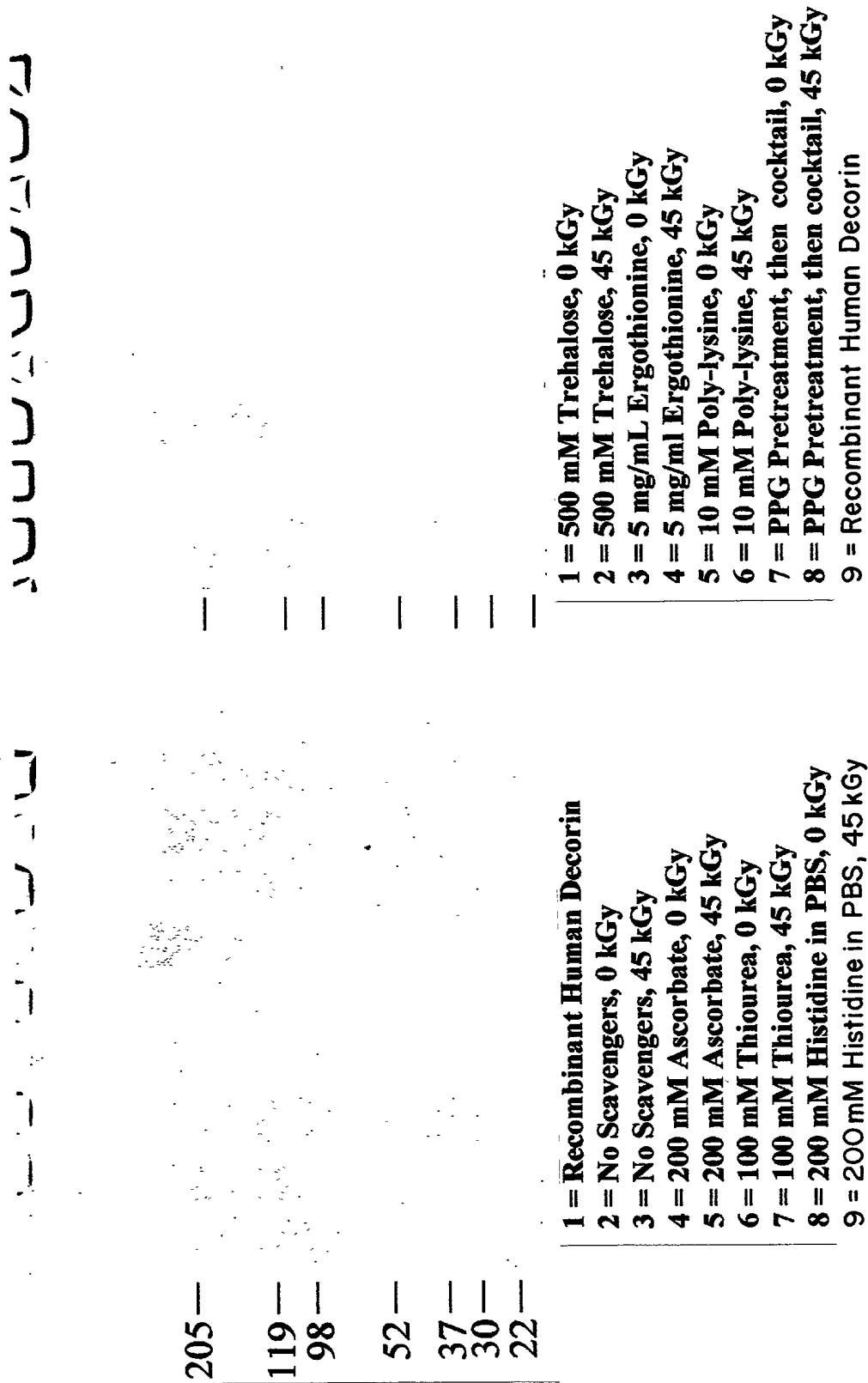
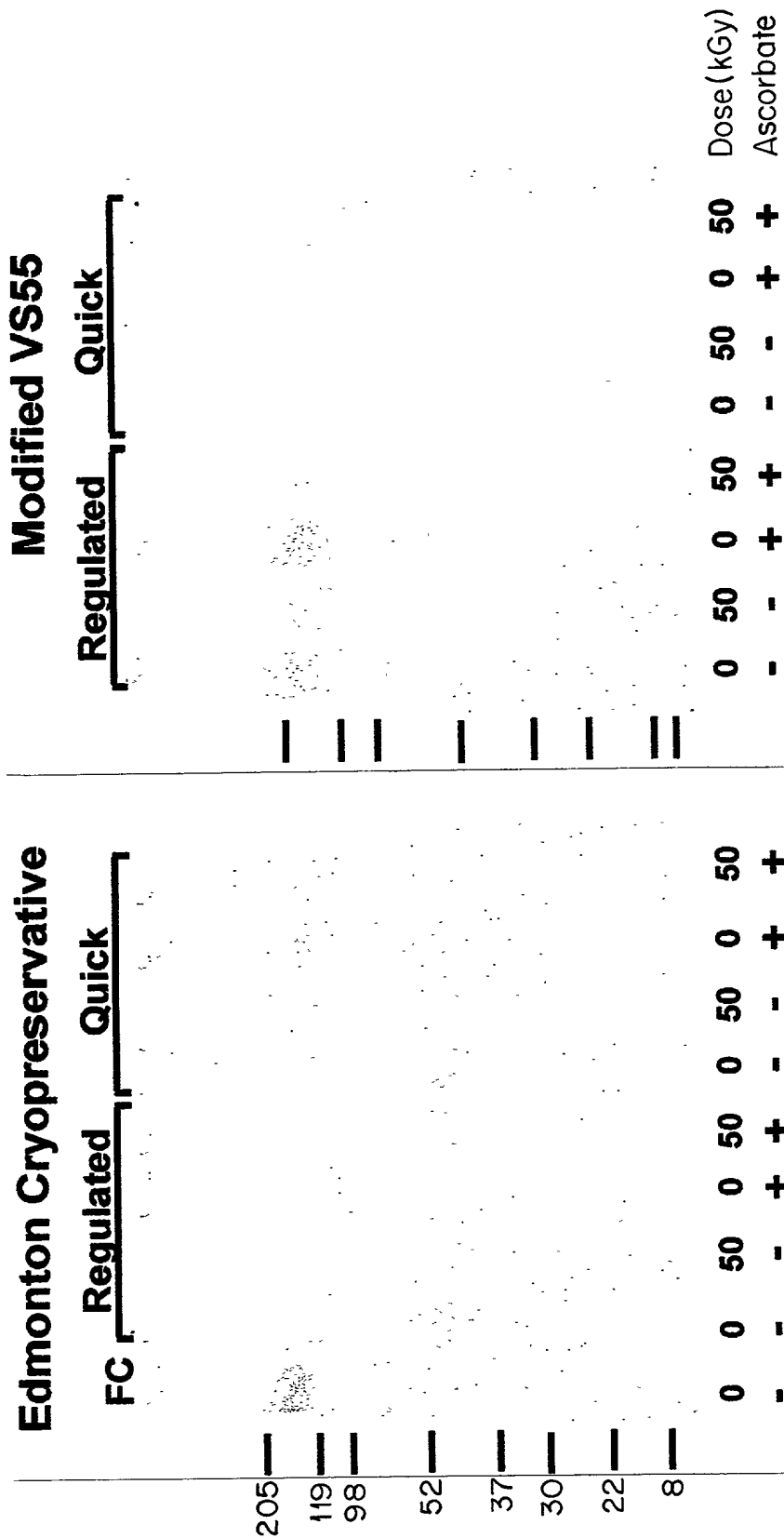


FIG. 7A



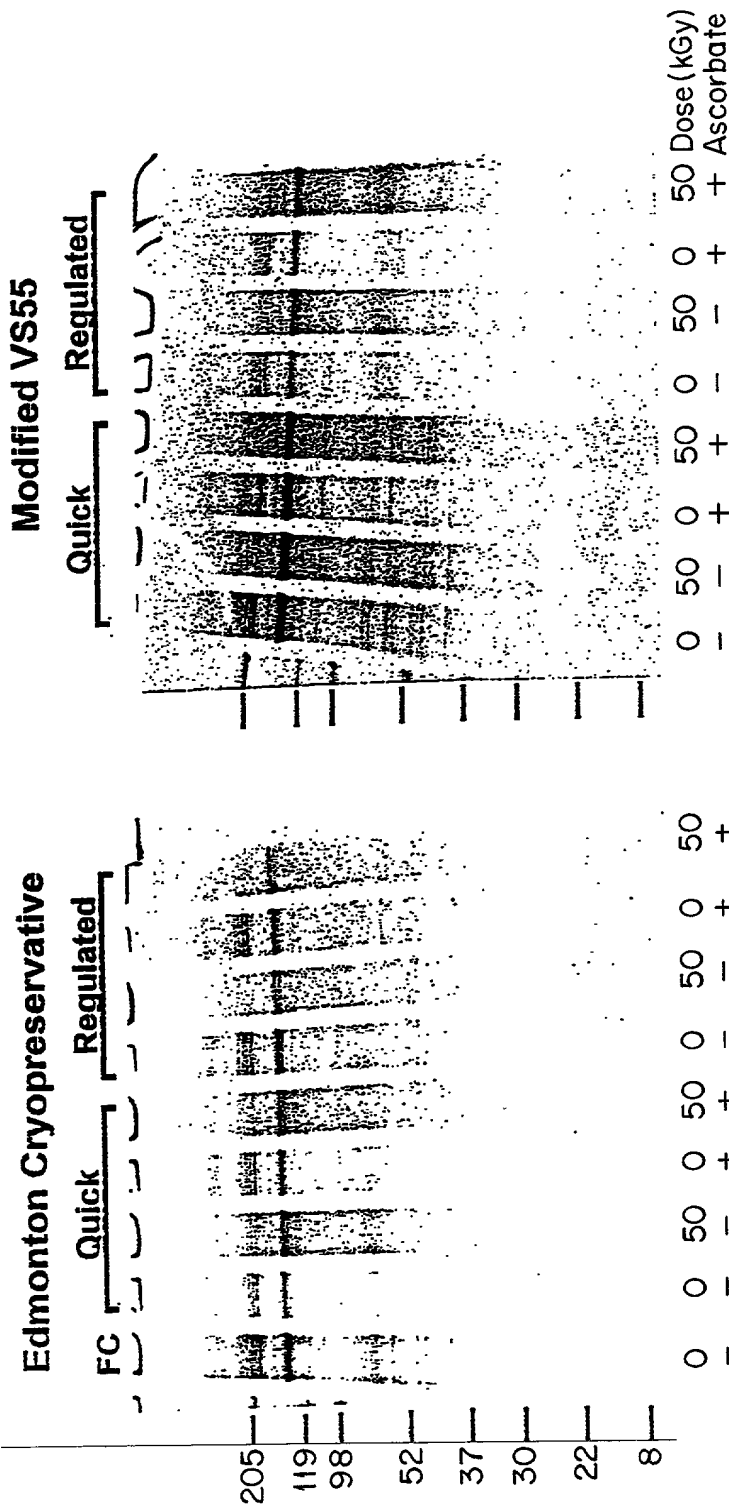
Edmonton CP: M199, 10% FCS, 2 M DMSO, Pen-Strep  
 Modified VS55: 100mM trehalose, 15mM K<sub>2</sub>HPO<sub>4</sub>, 42mM K<sub>2</sub>HPO<sub>4</sub>, 15mM KCl, 10mM NaHCO<sub>3</sub>, 150mM mannitol, 24.2% DMSO, 16.8% 1,2-propanediol, 14% formamide

FC: fresh ACL control

Quick Freeze: dry-ice ethanol bath

Regulated Freeze: decrease in temp. of 1°C/min to -56-59°C, then placed in -80°C

FIG. 7B



Edmonton CP: M199, 10% FCS, 2 M DMSO, Pen-Strep

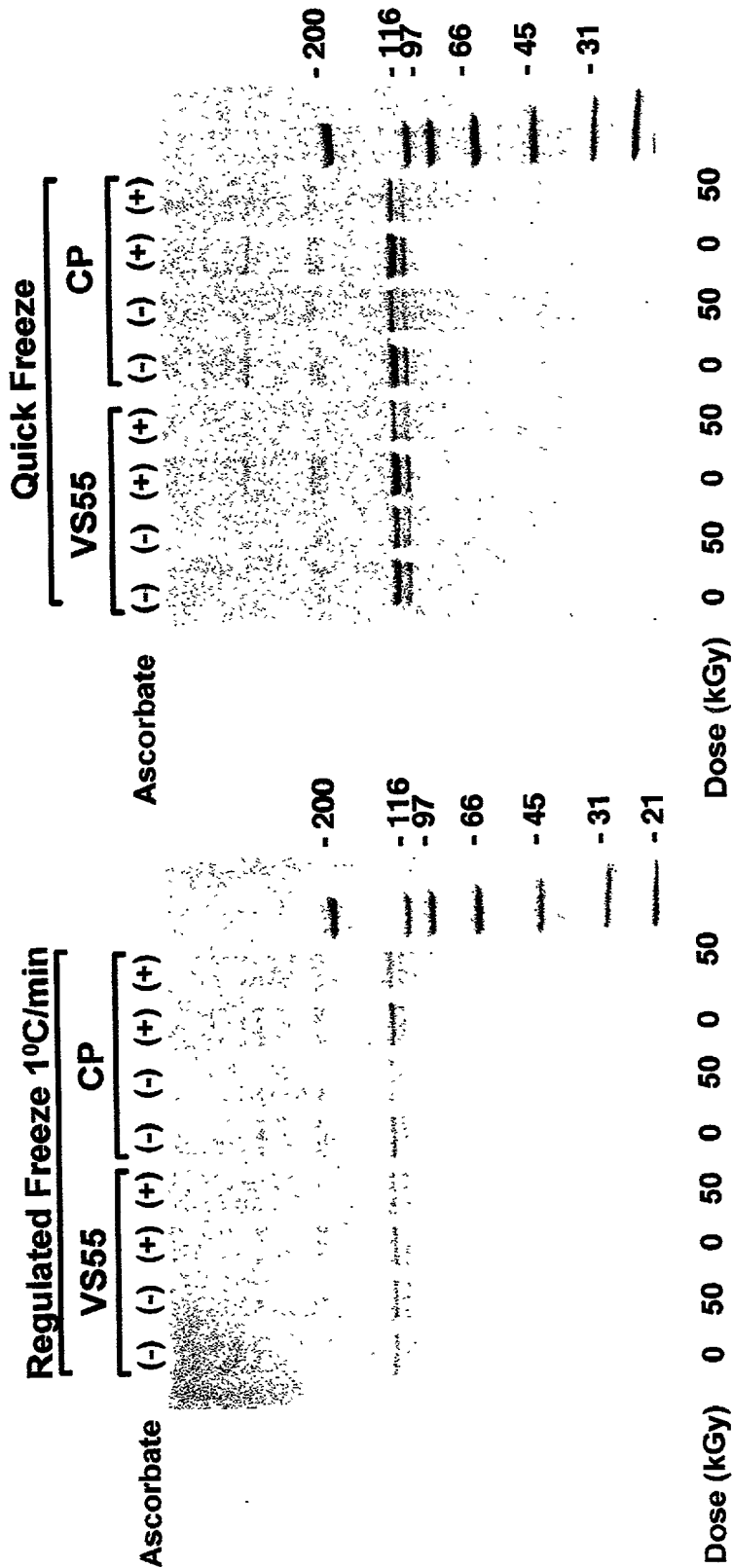
Modified VS55: 100 mM trehalose, 15 mM  $\text{KH}_2\text{PO}_4$ , 42 mM  $\text{K}_2\text{HPO}_4$ , 15 mM KCl, 10 mM  $\text{NaHCO}_3$ , 150 mM mannitol, 24.2% DMSO, 16.8% 1,2-propanediol, 14% formamide

FC: fresh ACL control

Quick Freeze: dry-ice ethanol bath

Regulated Freeze: decrease in temp. of  $1^\circ\text{C}/\text{min}$  to  $-56$ – $-59^\circ\text{C}$ , then placed in  $-80^\circ\text{C}$

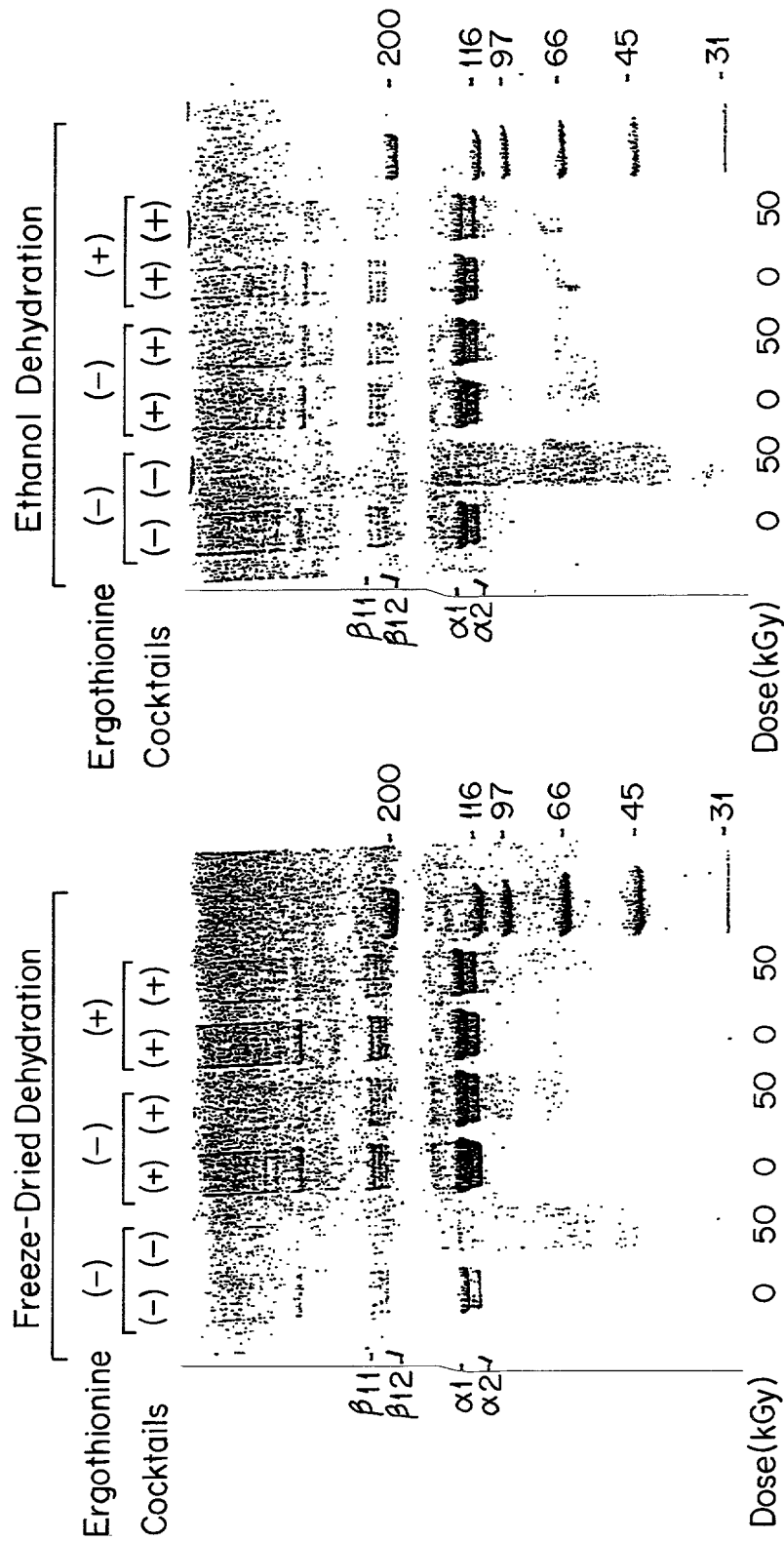
FIG. 7C



VS55: 100mM trehalose, 15mM  $\text{KH}_2\text{PO}_4$ , 42mM  $\text{K}_2\text{HPO}_4$ , 15mM KCl, 10mM  $\text{NaHCO}_3$ , 150mM mannitol, 24.2% DMSO, 16.8% 1, 2-propanediol, and 14% formamide

CP: 10% FCS, Penicillin-streptomycin, M199, and 2M DMSO

FIG. 8



Cocktails: 100  $\mu$ M troloxG, 100mM courmeric acid, 100mM lipoic acid, 100mM n-propyl gallate

FIG. 9A

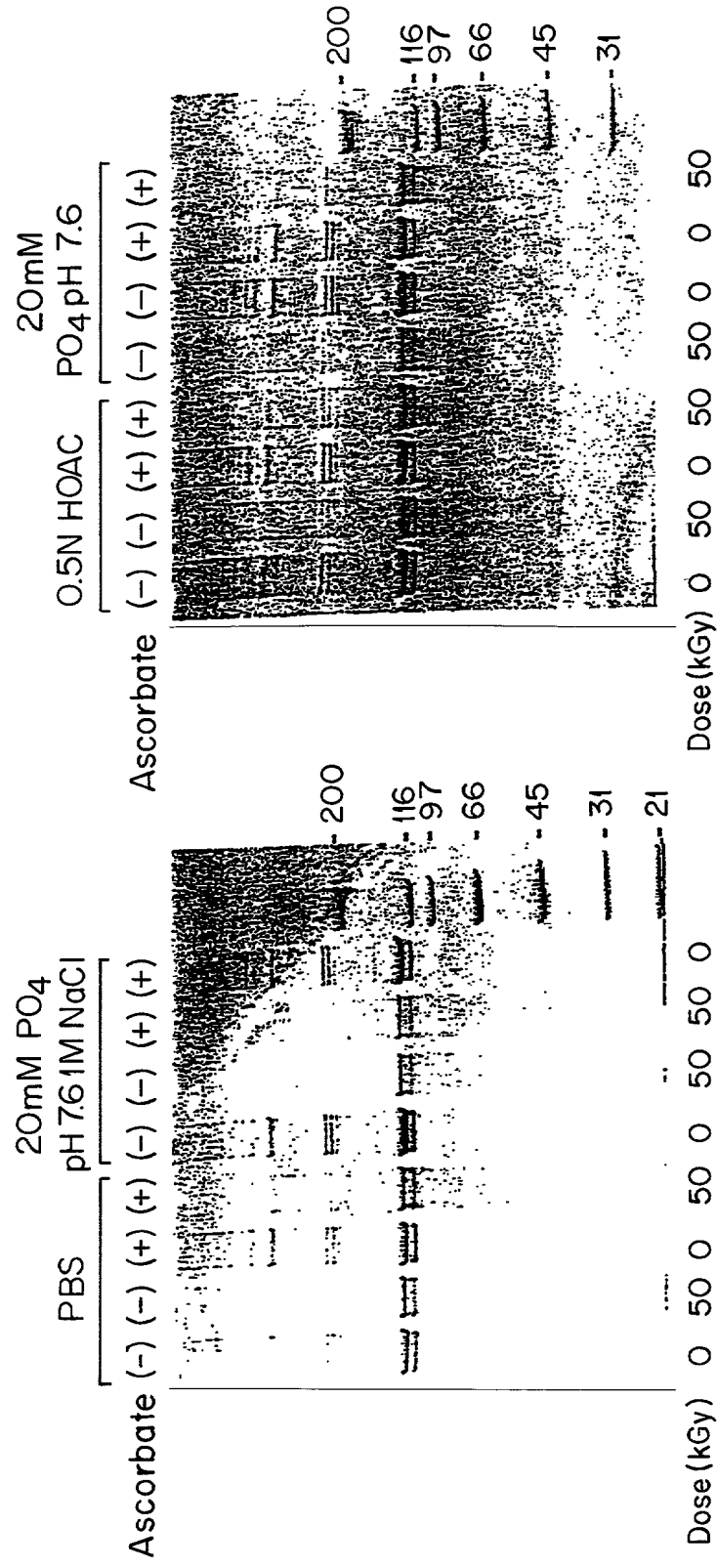


FIG. 9B

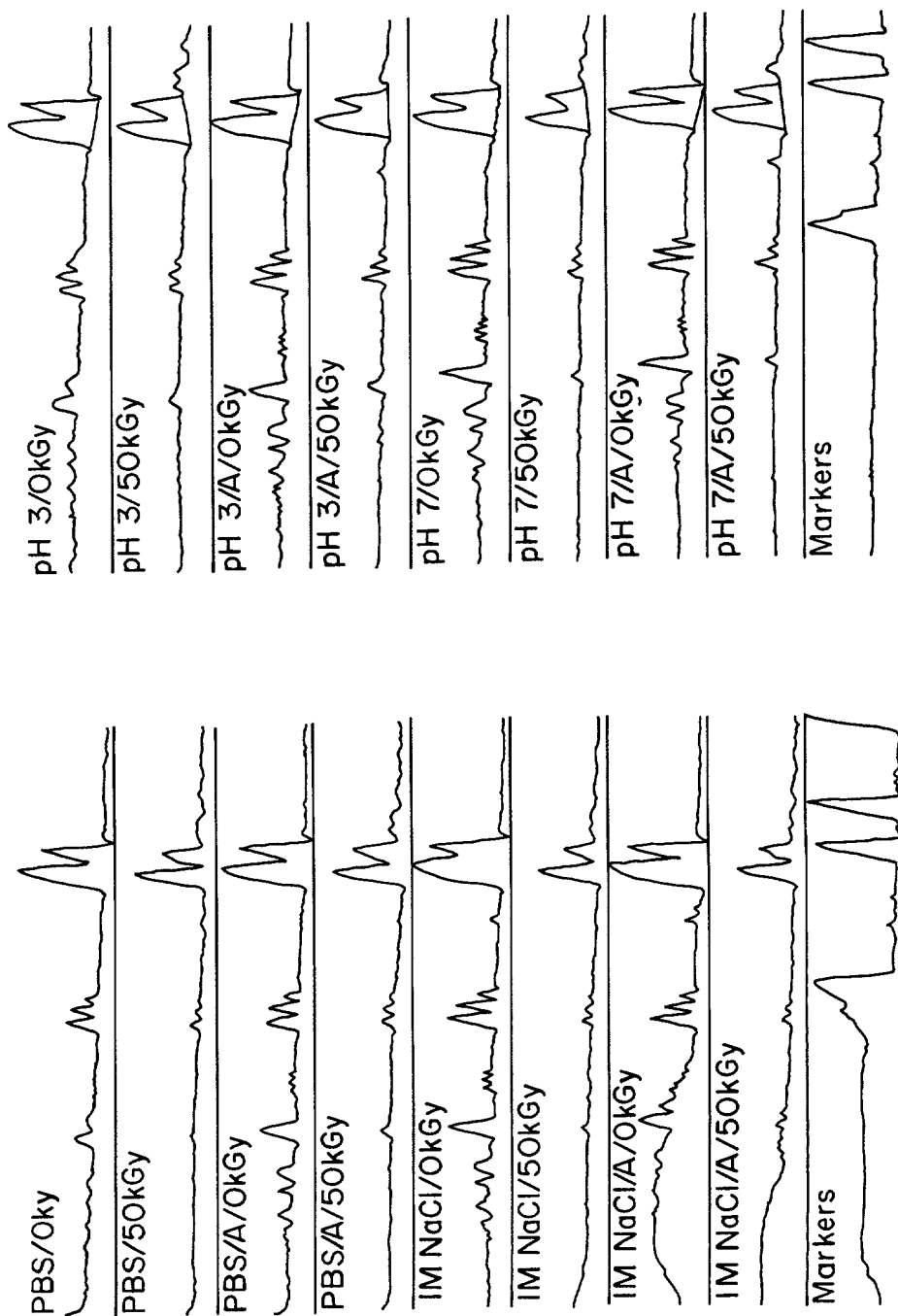


FIG. 10

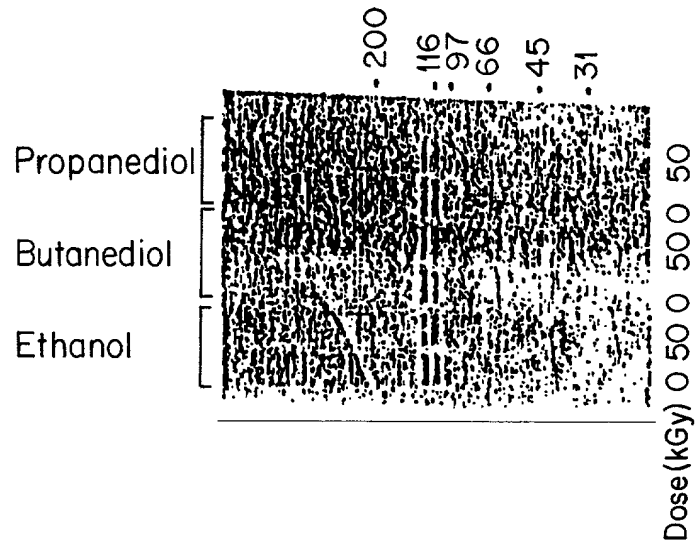


FIG. 11

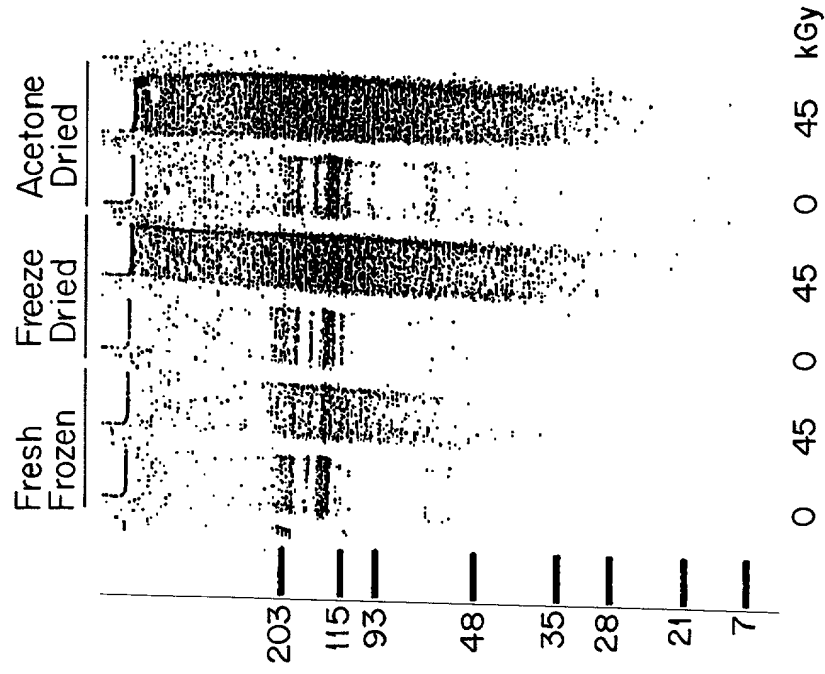




FIG. 12A

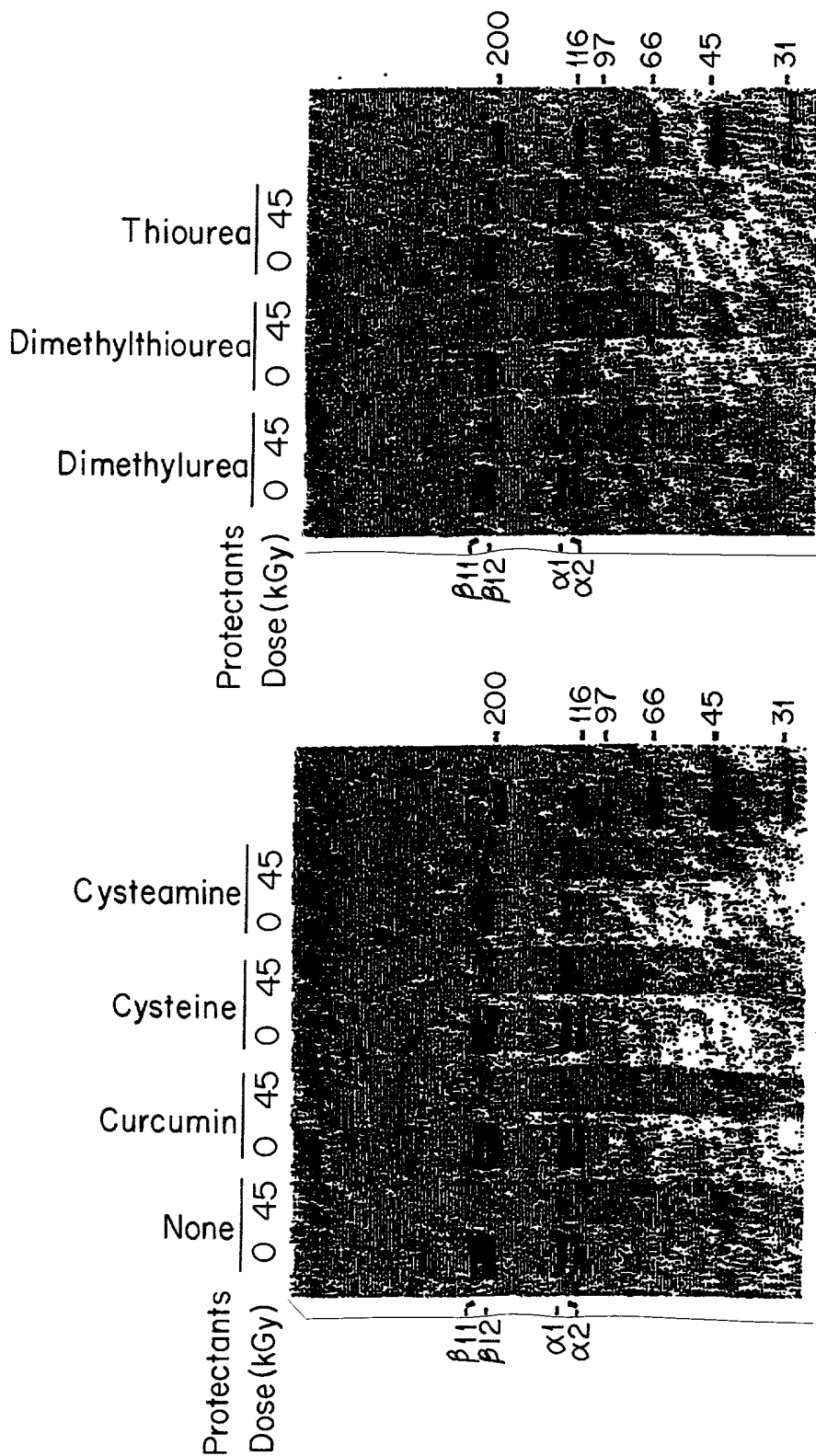


FIG. 12B

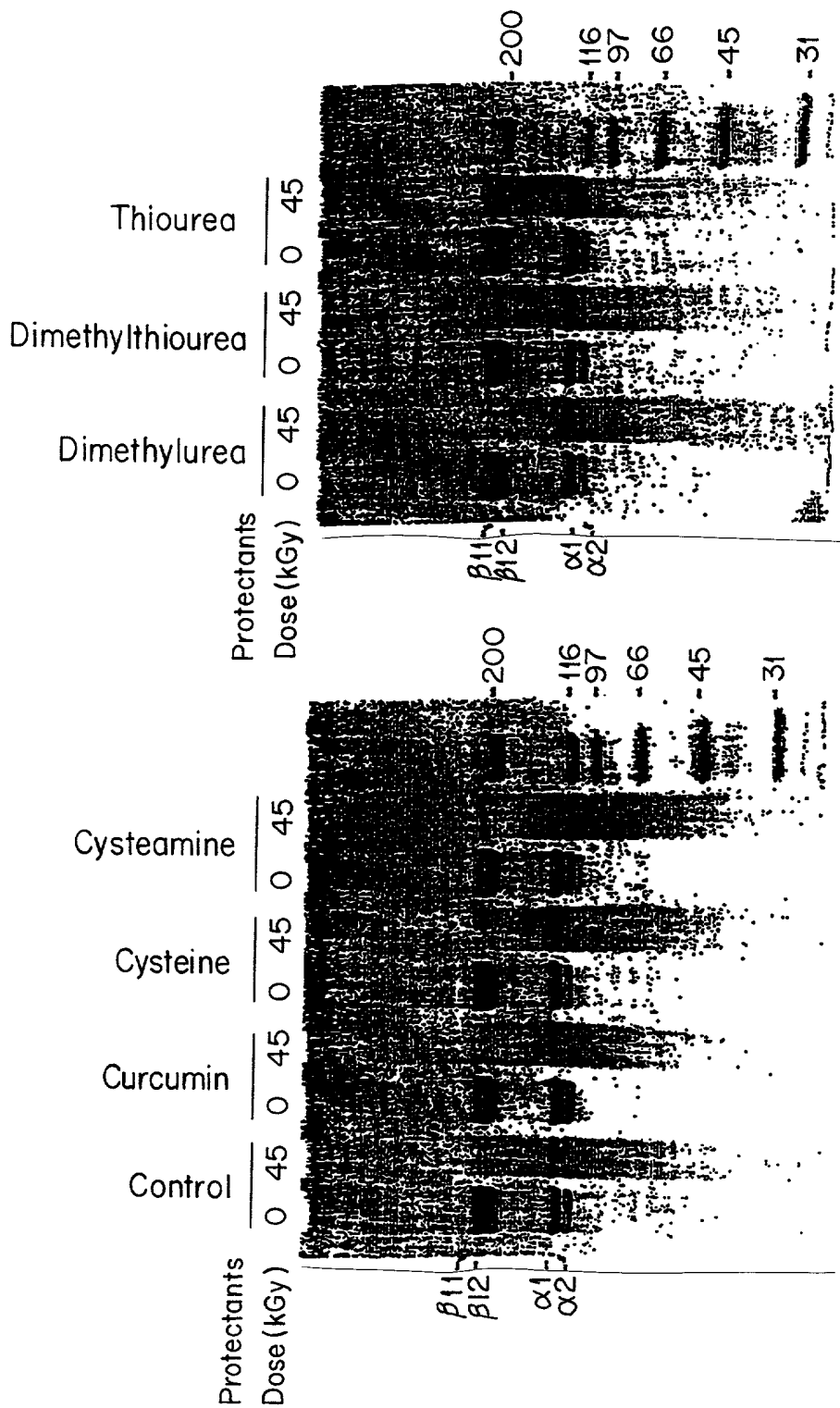


FIG. 12C

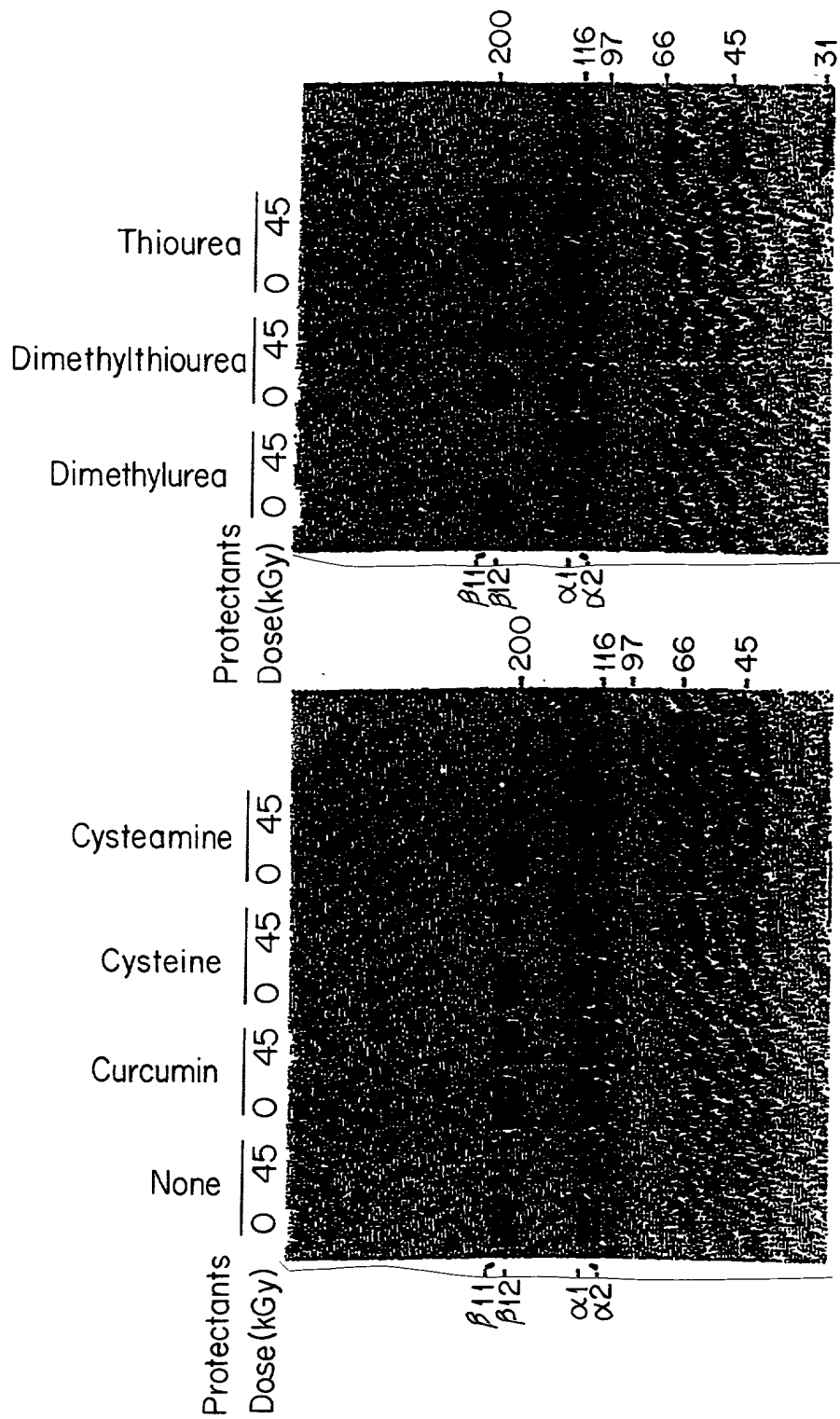


FIG. 13

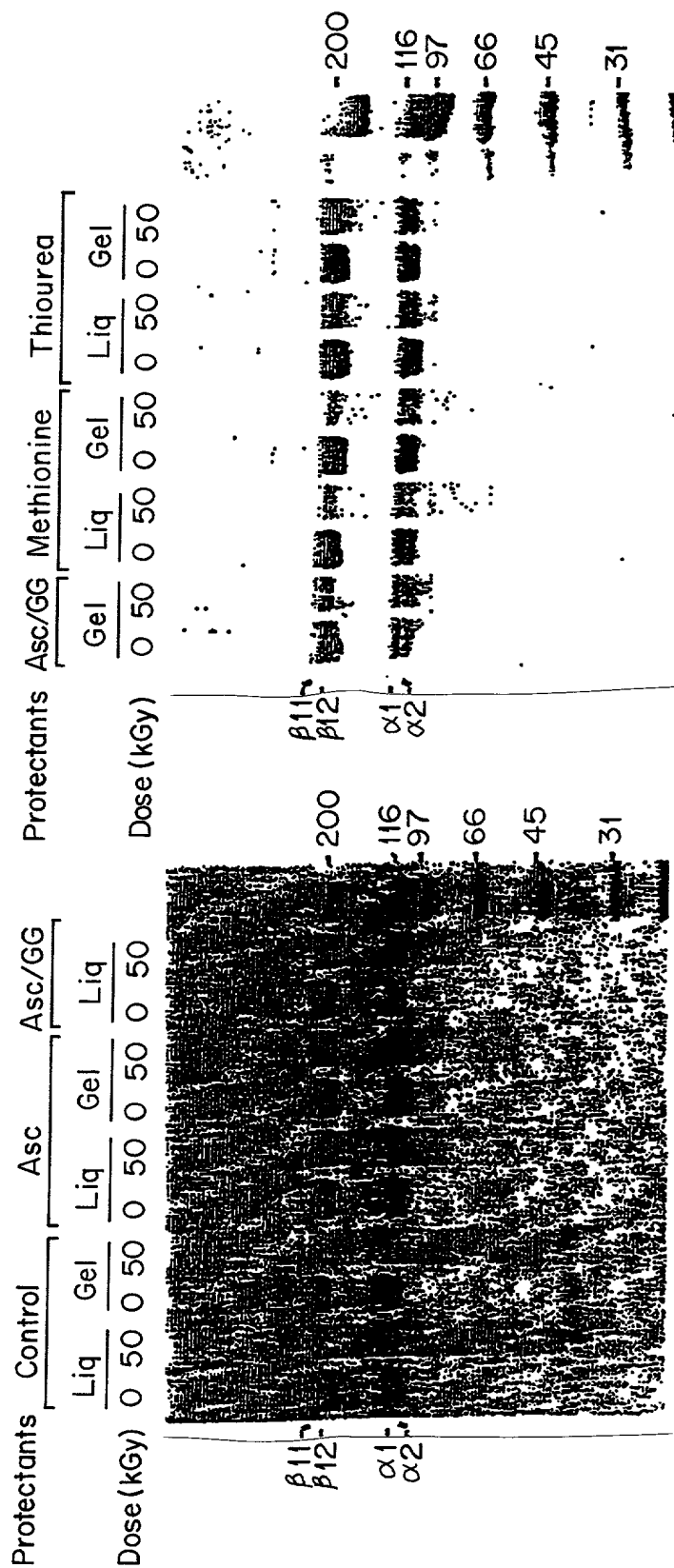


FIG. 14A

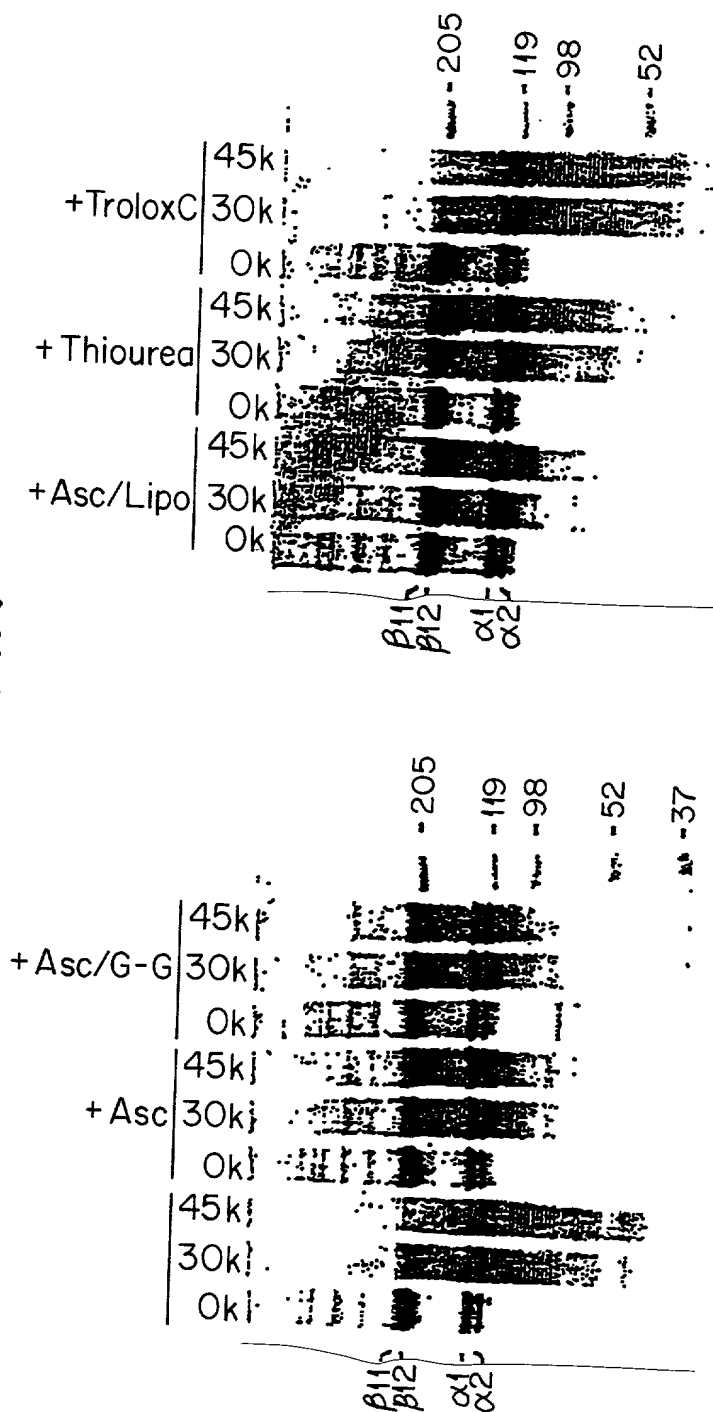
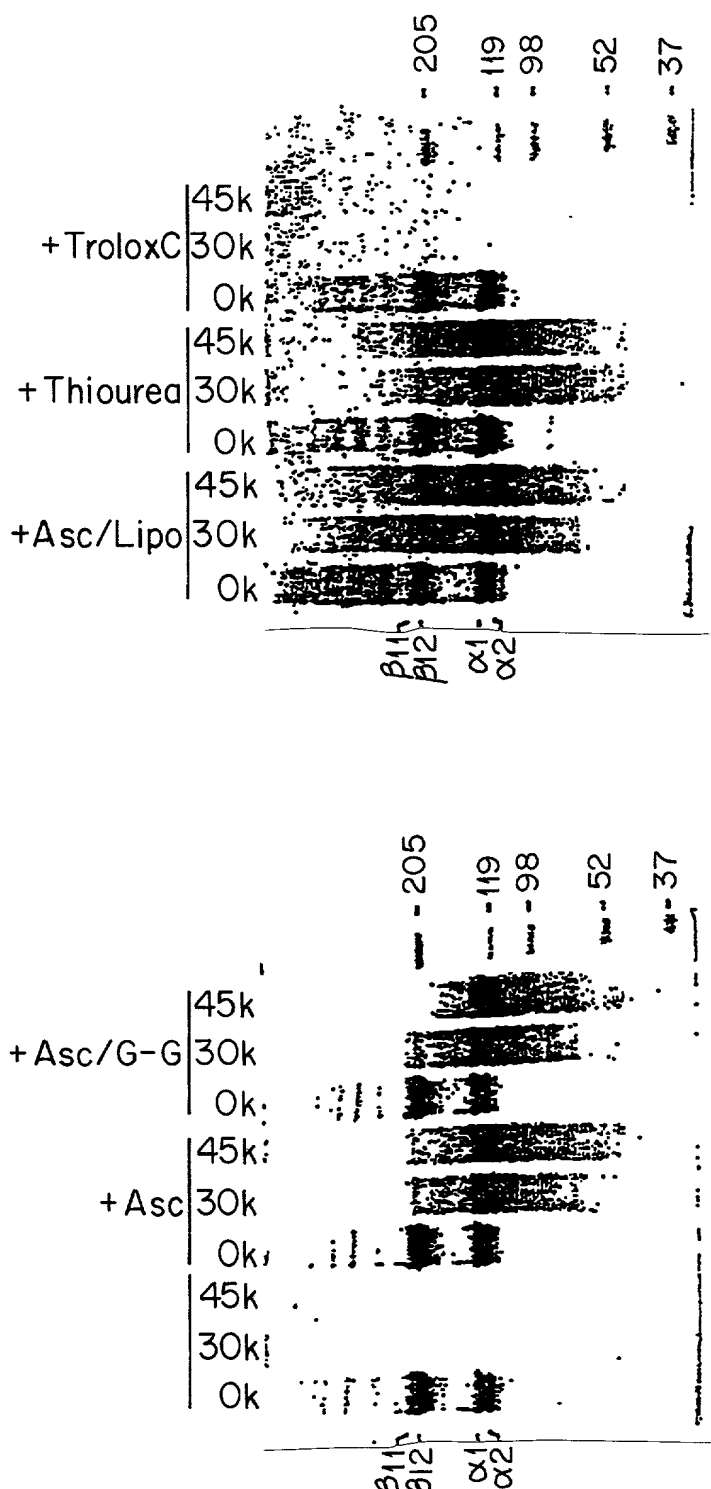


FIG. 14B



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FIG. 14C

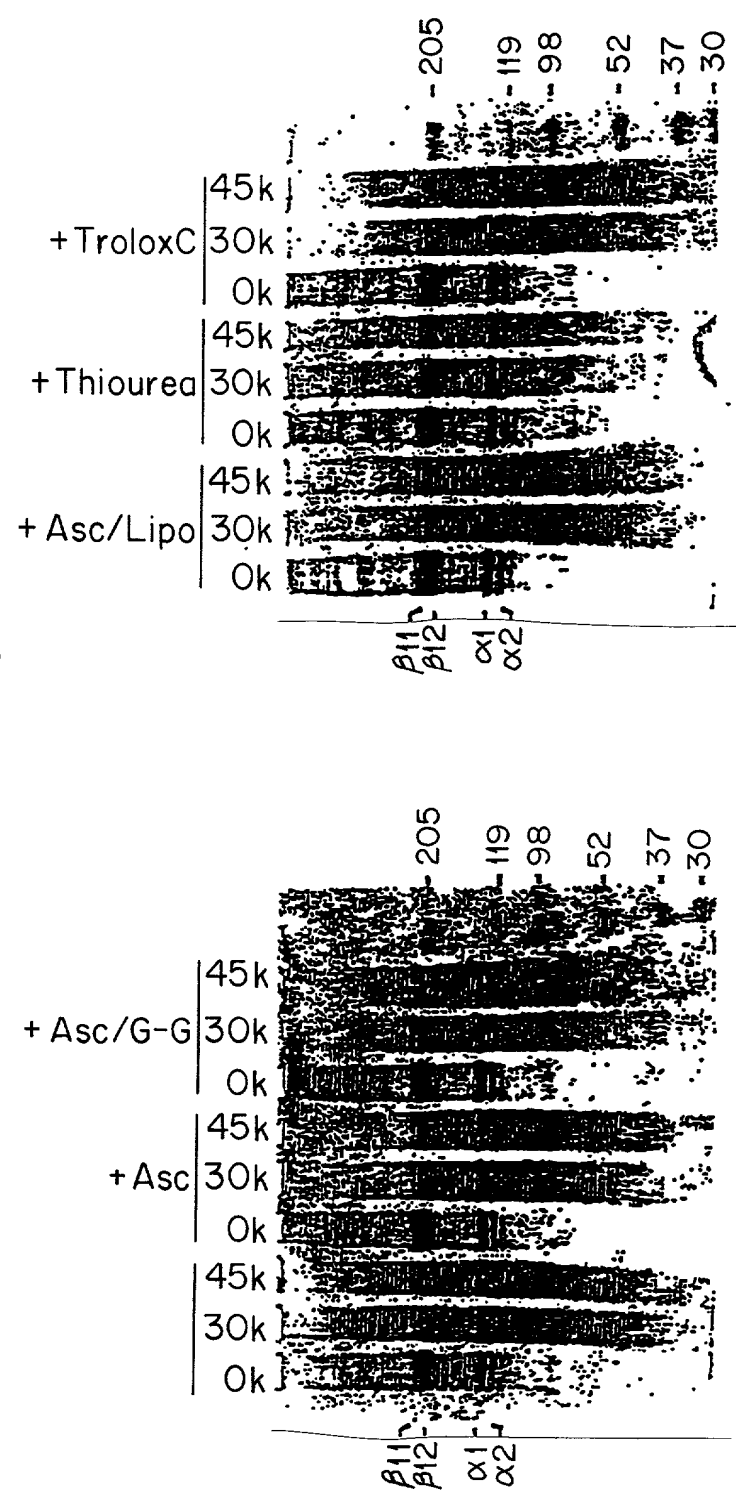


FIG. 14D

